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CONTENTS

The Appraisal of Farm Lands. *P. L. Gaddis* 401
Using Economic Information in Building an Annual Farm Program. *C. E. Brehm* 416
Discussion. *F. A. Harper* 422
Operating Procedure and Problems Under Section 32. *J. W. Tapp and F. R. Wilcox* 425
Commodity Surplus Diversion and Agricultural Adjustment. *B. H. Hibbard* 441
Discussion. *E. A. Duddy* 451
Selection of Areas for Sample Agricultural Enumerations 454
J. B. Shepard, H. H. Schutz (464)
Discussion. *Z. R. Pettet* 467
What Type of Farm Management, Individual, Professional, or Institutional? *D. W. Trick* 470
Farm Power Problems 479
E. L. Langsford, W. M. Hurst (483), *J. A. Hodges* (487)
Discussion. *L. J. Fletcher* 492
Milk Marketing Problems 494
C. G. McBride, J. M. Tinley (496), *T. K. Cowden* (501), *W. P. Mortenson* (505)
Livestock Adjustments. *A. F. Vass and O. V. Wells* 508
Discussion. *F. F. Elliott, A. G. Black, W. W. Wilcox, J. E. Wills, O. R. Johnson, H. C. Filley, R. T. Burdick, A. H. Lindsey, W. F. Knowles, M. A. Schaars.*
Cooperation in the South 520
J. S. Hathcock, J. G. Knapp (534)
Production Credit 540
L. J. Norton, E. C. Johnson (544), *C. R. Arnold* (547)
Farm Taxation 553
R. R. Renne, Donald Jackson (557)
Discussion. *William L. Bradshaw* (568), *H. R. Moore* (569)
Dairy and Poultry Statistics 572
R. L. Gillett, S. A. Jones (578)
Discussion. *S. W. Russell* 585
Land Utilization 588
Carl C. Taylor, E. H. Wiecking (594)
Discussion. *J. B. Kohlmeyer* (602), *C. A. Wiley* (603), *L. H. Hauter* (603), *George Wehrwein* (603), *C. E. Lively* (603), *G. F. Warren* (604), *Rex E. Willard* (604)
Historical Aspects of Agricultural Adjustment 605
H. C. Taylor, H. C. Woodworth (607), *O. V. Wells* (621)
Discussion. *O. C. Stine* 633

Notes:
A System for Quantity Discounts on Milk and Cream. *Paul E. Quintus* 636
Establishment of Ohio Students of Vocational Agriculture in Farming. *H. G. Kenestrick* 639
Sugar Beet Field Labor Under the AAA. *William T. Hem* 643
Whither—Lending to Farmers for Production Purposes. *C. J. Bradley* 648
Government Establishment of Small Farms in England and Scotland. *Edmund Whittaker* 650

Books Received 655
Book Reviews 656
News Items 672

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THE APPRAISAL OF FARM LANDS[1]

P. L. GADDIS
FARM CREDIT ADMINISTRATION

Mr. Doane gave us many good thoughts in his paper and for the most part I agree with it. We, of the Farm Credit Administration, appreciate the importance of consistent appraisal theory, that is, a sound philosophy of land values, because we, as no other farm loan agency in the country, are dealing with farm values in practically every county of the United States and in Puerto Rico, representing almost every type of farming and the whole range of climatic and soil factors. In our work we are continually building up, both at Washington and in the land banks, a large fund of information on climate, soils, agricultural conditions, types of farming, methods and costs of operation, yields, local commodity price variations, terms of rental and all such matters which have a bearing on land values, from which may be drawn conclusions that may develop into a rather complete philosophy and correlation of farm values. We feel that we have made considerable progress in that line.

Working on valuation problems and value correlations is a corps of men—land economists, soils specialists, type-of-farming specialists, mortgage loan men with many years of practical experience, men with commercial banking and credit experience, etc., representing various sections of the country, each one bringing to bear upon the problems his point of view to the end that proper solutions may be reached. Our position on appraisal procedure is the result of much consideration and many extended conferences. It is based on experience gained from many thousands of appraisals made in all parts of the country and dealing

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936.

with almost every phase of agriculture. During the past two years we have made detailed analytical studies of some 1500 farms and ranches well distributed throughout the country, to check our methods of valuation and standards of value. This work has proved of great assistance not only in checking our standards and methods, but also in giving us opportunities to study factors in value and compare types of risks among widely scattered areas. We expect to continue the project.

Mr. Doane has, in my opinion, very properly emphasized earnings. There is little doubt that much of the trouble that loan companies have experienced, in the past, has been caused by their failure to give proper consideration to the earning factor on individual farms and to trends, in whole areas, in land utilization and markets for certain crops. Lending agencies should recognize that the cash earnings from a property are ordinarily closely linked with the owner's ability to pay his taxes and meet his obligations.

I was impressed by the quotation from Mr. S. C. Hudson to the effect that land has value because it produces an income in the form of materials and services that satisfy human wants. Mr. Hudson recognizes that this income may be in the form of money or it may consist in part of the so-called amenities.

Mr. Doane stressed the importance of the theory of capitalization in the valuation of properties but mentioned that there are some who say that while capitalization is right in theory it will not work in practice. I believe that all careful students of appraisal theory and practices will concur in recognizing that a consideration of rate of return, the capitalization principle, is fundamental in valuation. Mr. Doane has given a quotation from Frederick M. Babcock that "property actually is the earning expectancy and the capitalized figure—the total value—is a derived fact depending upon the future income stream in some manner; . . . that the price required to so purchase a future income is proportional to the amount, character, and certainty of the earning expectancy; . . . thus income is the primary factor in valuation."

In considering this passage from Mr. Babcock's book, I took occasion to ask Mr. Babcock for further enlightenment on his idea of earnings as related to value. It is one thing to emphasize the importance of earnings, which is now generally recognized, both as to values and in lending; and quite another thing to determine the exact relationship that should exist between earnings and value. How to get from the one to the other is the problem. The Farm Credit Administration has from its organization empha-

sized earnings in accordance with the Act but that did not save us from the inflation error. One can "build up for an awful let down" on current earnings, based on $1.50 corn and $2.00 wheat, or on 25-cent cotton; or through a misuse of the earnings concept at lower price levels. I wanted to know particularly whether Mr. Babcock meant to imply that when we carry the principle of capitalization or rate of return over into practice, it is necessary or even advisable that we follow the method of direct capitalization of what may be the estimated typical net returns. To any who may not know of Mr. Babcock's contribution to appraisal theory and his present work, I will say that he is the author of a number of texts and articles on appraisal work and is now Chief of the Underwriting Section of the Mortgage Insurance Division of the Federal Housing Administration.

I quote in part from Mr. Babcock's reply:

". . . In practical appraisal we have never been able to make simple income predictions, assume capitalization rates, and directly determine our valuation. . . .

". . . You and I have seen many appraisals, made by men who subscribe to the capitalization theory, in which simple capitalization, without the controls, is presented. We suspect that the valuations are really made by alternative methods such as cost estimating or market comparison and that the report has done no more than to convert the results and present them as though income capitalization had been the actual process employed by the appraiser. I claim, and I am sure you agree, that in properties such as farms and urban dwellings, the direct capitalization of predicted average earning capacities is not feasible and that the results so obtained will tend to show violent inconsistencies.

"There is much to be gained if the problem is divided into two aspects: (1) the problem of securing the proper level of values, and (2) the problem of obtaining consistency between appraisals.

"The first problem can be solved only by a process in which selected properties of various types and grades are studied in terms of their long-term investment aspects and long-term market values. The same analyses are used as those which the direct income capitalizers are forced to make in justifying the capitalization rates which they use. The results of such studies will lead to a reasonable agreement among appraisers with respect to the values of certain typical properties. These valuations, in turn, become the bench marks on which all other valuations can be based by comparison.

"The second problem is solved, in my opinion, by establishing devices for making comparisons between properties to be appraised and the bench-mark properties. This is the point at which the predictions of probable future returns and earning capacities may be introduced into practical valuation.

". . . Personally, I feel that consistency is as important a goal as we may wish to seek at the present time. Simple direct capitalization of predicted incomes cannot give us consistency because it lacks the orderly and con-

trolled comparison ratings. The latter, on the other hand, put real meaning into the valuation process and give us results which appeal as being reasonable and plausible. . . .

"In conclusion, I believe that all valuation, in the final analysis, is a process in which predicted probable future returns, services, and amenities are translated into estimates of present values by some sort of capitalization but that such a method can be applied to practical valuation problems only where it is rigidly controlled at all points by meticulous comparisons made in accordance with a formal and orderly process of rating of investment risk factors which embrace all the elements which create and cause values to differ. The making of comparisons is the essence of the method."

These extracts from Mr. Babcock's letter indicate clearly his thought regarding the impracticability of a direct capitalization plan of appraising properties such as farms and urban dwellings. It is regretted that there is not time here to give more of the constructive suggestions from his letter. Since receiving Mr. Babcock's reply I have further discussed this matter with him and find that we have a common point of view on this phase of the subject of appraisals.

The method of appraisal procedure employed by the Farm Credit Administration will be outlined later. Let us first differentiate between two methods of using the capitalization principle. First, is the direct method under which an effort is made to determine the net income of an individual property and build values by a capitalization of that income. Second, is the checking or corroborative method under which values are first estimated on the basis of comparative productivity and other factors and then the capitalization method is used as a check in determining the soundness of those values. The Farm Credit Administration believes that serious errors will be more easily avoided if the latter method is used. It has carefully weighed the direct capitalization method and has not adopted it, believing that it is undependable, subject to serious error, and that it assumes a scientific accuracy that it does not possess under farm conditions in America. I mean just this, that estimated net income is only an estimate based on probabilities—probable crop acreages, or system of farming, probable quality of management, probable grade of fertility maintained, probable yields and prices and probable costs of operation, nearly all within comparatively wide limits. In addition to these probabilities are the home uses to be made of the property, in part intangible amenities. Shall we give the results of the capitalization method the dignity of scientific fact? Or shall we carefully consider each property and the services it renders, weighing as accurately as possible on a comparative basis the effect of these factors on its value?

It is conceivably possible that the direct capitalization method may be reasonably dependable where there is an equable climate, durable soils, standard rotations, definite fertility practices, stable markets and marketing organizations, a long record of consistent earnings and stable conditions otherwise. These, however, seldom exist over long periods of time. One of our appraisers who grew up in Scotland has told of records kept on the old family farm over a long period of years even to the exact number of pounds of beef marketed and the price received. Under such conditions where land is used intensively, where location and home desirability factors may be studied over a period of centuries and can be carefully rated in the light of sales prices, and where fertility factors are very carefully measured by analyses, it might be possible to standardize crop acreages, yields and costs and to adopt rates of capitalization that will give reasonably dependable values if continually revised to meet changing conditions. This does not appear to be true, however, where conditions are as variable as in the United States, with regard to climatic features, systems of cropping, types of farm management, fertility practices, yields of crops, costs of operation, stability of ownership, etcetera.

An example will serve to illustrate some of the very probable errors resulting from direct capitalization. An appraiser appraised a tobacco farm at $6,000. His prediction of the average net income was $1,500 per year to the owner-operator. The high percentage of the net return, which did not seem justified by the conditions, caused doubt in the minds of the loan committee members as to the appropriateness of the value. The appraiser had estimated 20 acres of tobacco averaging a yield of 1000 pounds an acre, used a price of 15 cents per pound, and indicated that his figures were conservative. An investigation disclosed that the present owner was actually doing better than that but the appraiser in estimating a representative farmer's income and expenses had not sufficiently allowed for this operator's experience and capability. County or township averages of acre yields are of little, if any, help in areas of variable conditions. The reviewer, after a careful investigation, estimated 16 acres of tobacco, an average yield of 850 pounds and a price of 13 cents for an average grade of the kind of tobacco grown. When the revised income figures were used and the costs of operation of a typical farmer carefully estimated and deducted, there resulted a net return of approximately $800 to the owner-operator which seemed consistent with the value placed on the land by the appraiser. Had the appraiser been using a direct capitalization method of ap-

praisal and had he established a fair rate of net return for the type of security and enterprise of, let us say 6 percent on the land or perhaps 12 percent to the owner-operator, on the basis of his estimated net return he would have found a value of $12,500 which is double what the property is worth. Since the farm was average or above as to quality, convenience of operation, location and home desirability, apparently no adjustment would have rectified the error and it would not have been averted unless, as one appraiser said, the appraiser's common sense had just told him the farm was not worth that amount of money and he had cut the value down. And yet, none of the individual mistakes was great—20 acres of the principal cash crop as against 16, a 1000-pound as compared with an 850-pound yield, and a 15-cent price instead of 13 cents. But the mistakes were pyramided, which can easily happen in connection with the valuation of the properties of exceptionally capable operators. Fortunately, this appraiser's schedule of values for a particular type of good tobacco land in that area ranged from $45 to $60 per acre and he fitted the land, in its setting, and the buildings into this schedule and range of values. In other words, gross error was avoided by the use of definite comparison controls. Consequently his appraisal of the property was one on which the long-experienced reviewer agreed within a few percent.

To sum up, it is not the selection of factors entering into value that I am condemning in the direct capitalization method; but rather the way in which those factors are evaluated, which is more susceptible to error and particularly to a pyramiding of errors than is the analytical, corroborative capitalization approach. In both methods the same factors entering into value may be recognized and weighed; but in our opinion the direct capitalization method lacks the necessary controls to give reasonable assurance of the correctness of the resulting values under a variety of conditions.

We feel, therefore, we cannot rely upon it in appraising individual farms, because:

(1) Accurate records of actual income, in most instances, are impossible to obtain. Dependable averages are just as difficult to arrive at. It is impracticable to estimate rental income in a large portion of the country where terms of rental and rental income are hypothetical or where renting usually involves on the part of the owner an additional investment in livestock and equipment with attendant losses and management problems.

(2) Estimates of expenses are subject to material error, since

costs vary quite as greatly as income. Especially is this true of such items as upkeep of improvements, cost of management, etc. What is it worth to manage a plantation where almost daily visits are required; where visits are monthly; where the property is handled entirely by correspondence? What is typical?

(3) Errors in the estimate of net income are directly reflected in the value. A difference of $100 in cost of management and/or upkeep on improvements would under direct capitalization make a $2,000 difference in value if a 5 percent rate of capitalization is used.

(4) The rate of capitalization to be used in each case may be a subject of debate. What are proper rates of return under varying conditions and on a wide variety of properties? Let me cite, as a rather simple example, a county in central New York which has some excellent valley dairy farms and some hill farms that are not generally so desirable from an investment standpoint. A rate that is suitable for one of these conditions would not appear at all suitable for the other. Let us take another example of a county in central Nebraska with some excellent bottom land adapted to corn and alfalfa, some silt and clay hill lands adapted for general farming with cattle as a major project, and some sand-hill ranches with practically no home value and some of which are not very well balanced between summer grazing and winter feed production. Can any common rate of capitalization be applied to even that one county that will give a logical answer? Is a preliminary value based on capitalizing income at a standard mortgage rate of any assistance in appraising in the sand hills? Perhaps as much assistance as a guide as would be obtained from dividing the $6 return from a drainage bond by a 2¾ percent government bond rate to get a preliminary value of $218 for a $100 bond. After getting the $218 value by this process, will the bond appraiser be able to deduct proper amounts for lack of security, for irregularity of earnings, for lack of liquidity, mental anguish, watchful waiting, etc., and arrive at a sound value? I should think that on the contrary he might be entirely misled by his first value which is highly fictitious. There would be a serious danger that he might overlook or underrate some factor that would leave him, let us say, a final value of 50 percent of his initial so-called earnings value. Such a $109 valuation, by a lending agency permitted to lend up to 75 percent, might result in an $81.75 loan, which is $6.75 in excess of a reasonably sound valuation. A practical appraiser of such a bond should first be thoroughly familiar with such projects, their histories, hazards

and liquidation possibilities and costs. After a careful inspection of the physical security back of the bond and an analysis of the financial condition of the district, he knows this bond in comparison with other such bonds over a period of years would represent a fairly attractive investment at $75. He sees that on such a valuation it will pay about 8 percent and he is satisfied that such a return is consistent with returns on other investments. It is obvious to one working over the entire country that proper rates of return vary with regions, localities and individual farms, because areas and individual properties differ greatly with respect to investment risks and factors of home desirability. This being true, if we should attempt to use direct capitalization, we would require some device by means of which to select the various rates with accuracy. Can we work out suitable rates of return not only for a variety of corn belt farms, but also for farms of different types in areas subject to frequent droughts; for ranches of all descriptions, some of which are dependent on outside grazings during a part of the year; for truck farms and fruit farms, some of which are in rather hazardous areas; for unimproved farms as compared with improved farms, especially where the latter are standard; where rates must be expressed in terms of the net returns to a representative owner-operator, particularly where the population is heterogeneous, and in view of a wide variation in standards of living and in the amount of products which the farm contributes directly to the family living? Only one who has worked on numerous correlations of the factors involved knows of the many complications and the impossibility of exactitude. Our conclusions, after a study of some 1500 farms, are that the actual rates of return are so extremely variable and depend upon so many factors that it would require an exhaustive survey to correlate them and develop a schedule of rates of return on both owner-operation and rental bases that would fit individual properties under all conditions. To use a rather simple example, it may be stated that in parts of the corn belt the rate of return to an owner-operator of a family-sized farm of good quality is on the average approximately twice that to a landlord. However, a certain 40-acre farm studied returns an estimated net income to the owner-operator of $227, plus a part of his living, and a net income to the landlord of only $28. These figures mean a return of 8.10 percent to an owner-operator and 1.00 percent to a landlord on the value assigned to the property by a group of experienced appraisers. Obviously this farm would not attract a wise investor not desiring a home. Neither would a lending agency

emphasizing earnings make a loan on it. A local institution that would depend upon the personal risk and salability of the property to save it from loss might finance an owner who would likely be a man desiring a property providing a job and a home in that community. On the other hand there are numerous farms of rather low quality land that pay almost as high a rate of return to a landlord as to an owner-operator. This is equivalent to saying that an owner who farms the land and furnishes the equipment and pays the other costs of operation will have little net cash income for his year's work in addition to the amount which he would have received had he rented the farm to a tenant. The principal recompense he receives for his labor consists of shelter and the products which the farm contributes directly to the family living. An example may be cited of a 230-acre farm which paid an estimated net return to the owner-operator of $236 while the net rental return was estimated at $176, the percentages being 5.90 and 4.40 respectively to owner-operator and landlord. This case shows the inconsistencies that arise and suggests a definite lack of reliability of the return to an owner-operator as a basis for establishing values even on staple crop farms. Fairly accurate comparisons between the return to an owner-operator and that to a landlord are possible only in areas where renting is customary and rental terms well established. In an area where renting is uncommon and where the only index of earnings is the return to an owner-operator, it would be very difficult to adopt a rate of return in advance that would not be more likely to mislead than to be of assistance. Granting that we could by extensive investigations and comparisons work out a schedule of rates that would fit the varied conditions, there is still the danger that we would unwittingly capitalize errors or consequential inaccuracies.

(5) The net rate of return as I have just indicated is affected not only by the type of enterprise and property, but also by the size of farm. Some small farms with substantial production and good sales value produce little, if any, net return. Let me cite, for example, a little farm in one of the best counties in Pennsylvania, consisting of 23 acres of excellent land which adjoining farmers would consider worth $125 to $150 per acre from a production standpoint, without regard to the buildings. They might actually be willing to pay considerably more for it to supplement an undersized unit or to serve as a home while assisting a son or daughter with the home farm. The buildings in their present condition have an insurable value of $7,000 to $8,000. The taxes and upkeep on those buildings take practically all of the net returns

above a living or reasonable labor return to the owner-operator, so there is almost nothing left to capitalize. It is a farm for a retired farmer who has it clear of incumbrance or for a man who has outside earnings. From the standpoint of value, the property is worth $7,000 or $8,000 to such a man, and there are quite a number of such men. It may be worth that to an owner for shelter, home advantages and a place to work, even though he recognizes that all the farm income he will get will only pay for his own labor. There are, of course, many full-sized units of a subsistence nature that do well to pay taxes and upkeep costs and that will give no net returns from a rental standpoint. A representative number of local people will buy them in order to have shelter and a place to make a fair living or possibly only to eke out an existence. Direct capitalization would not appear to be the approach to the valuation of such properties.

(6) The various determinations of what constitutes a representative or typical operator, average yields of crops, average quality of products, average prices, and costs of production are only approximate, and errors are too likely to be pyramided, especially in case of an above-average operator on an above-average farm. It may be possible that an agency with a few well-trained appraisers appraising in a limited area of stable conditions and well-established customary rents has found that the results from the capitalization method have been fairly consistent between appraisers, but they probably used a lot of common sense as a final check. In most of the country, those ideal conditions do not exist.

As an example, I refer first to sections where income is not expressed in terms of crops sold but depends upon a whole series of factors, such as quality of livestock kept, average management, feed conversion ratios, grade of milk produced, markets for products, etc. There are areas of intensive farming also where rentals cannot be determined and where the best common-sense appraisers are unable to determine just what net operating returns to figure from highly specialized and perishable crops with market conditions subject to extreme fluctuations. The appraiser may know of other areas just as well adapted to such crops, which because of a slightly less advantageous location have not been developed. He also knows that some marketing agency is likely to finance such development at any time on a much lower price level, and hence he is not led astray by an imposing statement of earnings accompanied by very great risks. How much is a 13-acre truck farm worth if it returns $9,250 gross with $7,100 ex-

penses, has no established terms of rental, and sales prices fluctuate on a very wide scale? What is it worth to manage such a property and to finance a crop that may in a particular season be produced at a loss? Is an average net return of $2,150 more than a suitable labor income to one who carries these risks? Is there any return on investment in land?

I have spent some time in pointing out the difficulties and the errors which frequently accompany the use of the direct capitalization method. It has not been my purpose to destroy your confidence in the principle of capitalization, but to point out the danger of its misuse. Too long have mortgage companies ignored the fundamental necessity of recognizing normal earning power as a principal factor in valuation. The recent depression emphasized that. The danger now is that we may swing too far to a complete dependence upon direct capitalization based on estimated earnings and err as seriously as in ignoring earnings. My purpose is to point out how we believe capitalization can best be used in sound appraisal practice. We believe it should be used, first, to assist in the establishment of bench marks of value where the size of the sample minimizes errors; and, secondly, to check values arrived at in a step-by-step analytical appraisal of individual properties. Mr. Doane has emphasized the desirability of a step-by-step method of developing values. We concur in the general idea that lump-sum appraisals are to be avoided.

An appraiser going into an area to appraise for the first time, without the guidance of any "type-farms" or "bench marks," should first establish a schedule of values. In doing so his first step will be to make a general survey of the territory, its climate and soils, the types of farming followed, the crops grown, the yields obtained on different types of land and their consistency, the quality of the product, the markets available and terms of rental; and to develop other pertinent information.

He will examine a sufficient number of farms to represent a liberal sample and a cross-section of the area; he will determine the earnings on representative types of properties both on an owner-operation and on a rental basis, where possible. On the basis of representative or average management, his attention will be centered on gross income under different types of operation, on the costs of production, and, consequently, on net earnings. At the same time he will be obtaining information on the prices for which lands of varying quality in various locations and in different types of units have sold at various times. Naturally, he will associate these sale prices with general conditions and com-

modity price levels obtaining at the time the transfers were made and will make appropriate adjustments to offset unusual conditions. He will learn of the strength or weakness of demand for land when conditions were abnormal and the demonstrated power of recovery after unfavorable years or periods of depression. He will note the trends affecting land values, such as land utilization, abandonment, tenancy, price levels of commodities, the development of competing areas, taxes, costs and standards of living. He will solicit the opinion of substantial farmers and business men as to sound values of land based on normal conditions and levels of commodity prices.

As his survey and investigations progress, the appraiser will come to associate values with different types of land based on production, taking into consideration the unit, as well as home and community conditions. He will have several threads of evidence converging, which he will need to harmonize in reaching sound conclusions: namely, gross and net acre or unit production; the history of farm sales over a period of years; actual net earnings of properties on the basis of expected prices; rates of return in consideration of the desirability of the investment; trends in land utilization, markets, etc., and opinions of substantial farmers and business men. For example, he will have a background of information justifying his belief that land of a given type and quality, producing approximately 40 bushels of corn in a customary rotation, is worth $90-110 per acre if in desirable units and in a good community; or that a certain type of cotton land, producing, with sufficient fertilizer, ¾ bale, is worth $50-60 per acre. He will associate other values with cultivated lands of higher or lower quality, different grades of pasture land, and with other conditions. These become his preliminary comparison guides.

In applying these tentative values to the various farms he has visited and checking with the net returns he may find, for example, that with few exceptions the best units in the best localities pay a net return of from 4 to 5 percent on a rental basis or from 8 to 10 percent to the owner-operator, and that in some of the less desirable localities rental returns range up to 6 or 7 percent, with consistent increases to owner-operator. There may be exceptions, however, in that certain undesirable, off-type farms will show higher rates of return and that some choice farms will drop below the usual minimum. There are some which he cannot explain without a detailed study, where the estimated returns probably reflect unusual conditions; for example, unimproved farms, where the rate seems very high, and certain small units and subsistence

properties, where there are no net rental returns above fixed charges. His next step is to decide whether the common rates of return properly reflect the desirability of the investment, that is, the quality, the durability, stability, etc., of the physical security, as well as the amenities and hazards involved. He may decide that his preliminary schedule of values is too high on land or properties of certain types. He will make the necessary adjustments so that his final schedule of values will reflect generally rates of return consistent with the regional, local and individual risks and benefits of ownership. He will check the farm values assigned to different properties in the survey to determine whether they are consistent, one with the other and make in his schedule of values any additional adjustments that appear necessary.

The appraiser should then be ready to make sound appraisals in the area. His first approach to the appraisal of an individual farm will be to determine the type of unit and the setting; that is, he will ascertain the size of the unit, not necessarily in acres but rather in capacity, as compared with the general run of farms in the area; the type of farming that is followed; the type of people in the community, their standards of living and the community services and conveniences afforded. He will give consideration to the distance from town, the markets for the products grown and the type and conditions of roads leading thereto. He will consider the desirability of the unit from the standpoint of whether it is well balanced, convenient to operate, adequately improved, etc. He is then ready to make a detailed examination of the physical property, determining the acreages of different types of land, their customary utilization, condition and yielding power to which he may give a definite rating. Then, by comparison with his established scale of values, he will assign acre values to different parts of the farm and sum up his total land value. He will next examine carefully each building, considering its insurability and replacement less depreciation value. He will also value each from the standpoint of its utility to a representative or typical operator for the unit. In the light of his analysis he will then assign to the entire property a value which he believes it worth under normal conditions to a representative operator for agricultural purposes. By normal conditions I mean fair or average crops, normal prices for the principal farm commodities, normal farm earnings, and an ordinary balance between buyers and sellers of farm properties. After arriving at this preliminary value which is based on the production of the land and the desirability

of the unit, the appraiser should work out as carefully as he can the income and expenses of the present operator and of a typical operator, showing net returns to each. If renting is common he determines the net amount of rental that will accrue to the landlord. He compares both of these typical figures with his value to determine whether they represent reasonable rates of earnings, in addition, of course, to what the farm contributes directly to the family living under owner-operation. The appraiser should explain any apparent inconsistency in the rate of return. In addition to checking by the rate of return the appraiser also checks with the carrying capacity, if a livestock farm; and by productive capacity, if a staple cash crop farm such as a cotton or tobacco farm, an apple orchard or citrus grove. He compares the farm also with other units that he has examined or that have been established as type farms or "bench marks," as Mr. Babcock puts it, in order that his values will be consistent. He checks his valuation by the sale prices if the farm has changed hands within recent years, or with sales of similar lands at various periods. He is careful not to be influenced by cases in which special relationships or conditions may have entered in to give a distorted picture, or by speculative prices. If assets other than agricultural are involved, the appraiser will carefully investigate their extent and permanence and give them appropriate weight in his all-asset value.

To summarize, in making an appraisal, the appraiser will take the following steps: (1) make a study of the unit in its setting, including trends in production, markets and home uses; (2) make a complete inspection of the property, carefully classifying the land by type, utilization and production; (3) accurately measure, and determine the utility of each building; (4) assign acre values and individual building values; (5) value the unit as a whole; (6) carefully estimate farm income and expenses under present management and under typical operation; (7) check by rate of return to representative owner-operator and landlord; (8) check livestock units with carrying capacity or staple cash-crop farms by productive capacity; (9) check with type farms or other units appraised previously in this and other areas; (10) check with sales prices under different conditions, adjusted for abnormality; (11) check with the opinion of sound and substantial farmers and business men of the area; (12) make appropriate allowance in his all-asset value for any nonagricultural features. His report will contain a complete explanation.

I agree with Mr. Doane that the appraisal committee has taken a forward-looking position in recognizing certain foundation principles in valuation. It has clarified certain terminology. It has adopted definite standards on the place and duties of the appraiser from an ethical standpoint. With the appraisal viewpoint in this country recognizing the importance of earnings and home uses we are ready to move forward. There is much yet to be learned about both the theory and the practice of appraisals and we solicit the interest of economists, agronomists and practical loan men in working out both the theory of values and the practice of appraising on a sound basis. There is a need for careful investigation of the importance and weight of various factors entering into value such as location, roads, transportation methods and costs, price levels, markets, present and future productivity in terms of crops on different types of soils and topography, feed conversion ratios on livestock farms, costs of production, building upkeep, etc. Appraisers, loan committeemen, executives of lending agencies, and investors should be well informed on the relative weights of these various factors. A well-grounded philosophy of land values, carefully worked out into practice, should do much to avoid extremes that have been very damaging in the past. Inflated land prices and over-extended credit during prosperous times with resultant periods of depression, foreclosures, dispossession of worthy farmers and loss to lending agencies, should be avoided to a large extent if leaders in economic thought, credit agencies, farm managers and advisers throughout the country, develop and maintain sound levels of land values.

In closing I wish to suggest that there is a real opportunity for us to develop a systematic appraisal method that may be known as the "American" way of appraising. I am hopeful that we can avoid the two extreme positions that have caused disagreement in Germany for several decades, that is, the direct capitalization approach and the sales approach. The method I have attempted to describe may be considered as one which, in my opinion, avoids the evils of both and retains the good points. It is a method which employs analysis, comparison, and capitalization, in the order mentioned. I do not know whether the subcommittee working on appraisal technique will be able to agree on some of the important points of procedure in making individual appraisals. If not, it is understood that we shall stop at the last point where we can agree. It will be then for different agencies interested in the appraisal problem, separately or in groups to develop appraisal methods and procedure satisfactory to them.

USING ECONOMIC INFORMATION IN BUILDING AN ANNUAL FARM PROGRAM[1]

C. E. Brehm
University of Tennessee

It has been my observation that there are good reasons for every farm practice that prevails in a community, or region, and these practices, or systems of farming, are based on many years practical experience, or economic need, to meet conditions peculiar to that region. For example, there is a good economic reason, in certain areas in Tennessee, to sell corn by the gallon rather than by the bushel, or feed it to hogs, despite the fact the laws make it illegal to sell it this way. It has, also, been my observation that the people in a community know more about that community and its needs and what developments are possible than people that do not live there—economists and specialists from the college for example—and that on the individual farm the farmer knows more about his particular farm, the productive capacity of the land, and its adaptation to certain crops than anyone else. He ought to, because he works the land. I have, also, observed that there are usually good reasons why farmers do not change old established practices readily for new practices recommended by the college: (1) uncertainty whether the new practice is better than the old; (2) lack of money to put the recommended practice in operation; (3) lack of enough detailed knowledge to put the new practice in operation equally as well as the old practice; (4) a general prejudice or inertia against change; and other reasons.

People know many things about their particular community and individual farms that specialists in various phases of rural life do not know. While extension people have been teaching rural people many improved practices, rural people at the same time have been teaching extension people many things about farming and rural life, which is as it should be. A good teacher always learns more than the pupil. The knowledge thus acquired from rural people explains why some practices recommended by the college, or specialists in rural life, have only slowly or never been adopted in many rural communities, or on individual farms. We have found over many years of experience in extension teaching that in the early days of extension work particularly, some of our recommendations were not sound economically for

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936.

all conditions and were not adapted to all communities and individual farms. One of the mistakes I think we made in the early days in extension teaching was that we were prone to underestimate the knowledge rural people had of practices best adapted to them in their peculiar environment. And, some of us even at the present time occasionally make this same mistake. When I look back over the years I have been engaged in extension teaching and consider the subject matter taught twenty-five years ago, the simpleness and directness of it in contrast with the vast amount of research data pertaining to agriculture, home economics and all other phases of rural life that has accumulated in the intervening years; the things that impress me most are the progress that has been made in extension teaching, and the great volume of facts yet to be discovered concerning rural conditions in all parts of a state before many of our recommendations can be made more specific for various types of farming areas. This will always be the case as long as we live in a world that changes.

While there were many things the scientist, economist and specialist did not know about factors that influenced farm and home economy in those early days, there were many things the scientist did know, which farmers generally did not know, or at least, did not put into practice. Furthermore, it soon became apparent that if many of the facts known by the scientist were applied in practice by the farmer, or housewife, they would contribute to increased income, or to the satisfaction and comforts of living. It then became the job of those engaged in extension teaching to adapt the facts known by the scientist to the knowledge which the farmer or housewife had of their own particular farm or home, and evolve a farm or home practice that could be applied with the equipment and conditions prevailing on that particular farm, or in that particular home.

We soon found that there were not enough facts upon which to make recommendations concerning drastic changes in the management of the entire farm or home. Therefore, the annual Extension program was confined largely to recommending improvements in many different disassociated practices involving all phases of rural life, and concerning the soundness of which there could be no question. In this work it is commonly known that the United States Department of Agriculture and the Agricultural Colleges have made a great contribution in bringing about improvements in rural life. It would be difficult to evaluate just how great this contribution has been. This was the first step

in aiding rural people to adjust themselves to changing economic conditions in a changing world, but it has not brought some of the adjustments and changes in farm and home economy that present conditions in the United States and the world indicate are in the best interest of people engaged in agriculture—that is more drastic readjustment. Programs of this kind fit beautifully the World War period when increased production of commodities was essential. They were not so well adapted to the period from 1921 to 1932 when it was so necessary to curtail production, consistent with declining demand, if higher prices were to be maintained. This is another lesson that has been learned.

There will always be a need for the simple practice type of educational demonstration work. There are many farms, for example, where the application of one practice—terracing, or the use of lime, may change the entire management of the farm for the better in increasing income and bringing about other desirable changes. And, with many farms this type of teaching is the first approach toward arousing interest in the use of data and facts that effect more far-reaching, beneficial changes in farm and home management.

The years of the depression (and these began for Agriculture some years prior to 1929) emphasized as never before the necessity of making more drastic readjustments on individual farms and in various regional areas than were brought about by better farm and home practices. The accumulating surpluses of staple agricultural products and corresponding declines in prices, more than offset the gains in income from improved farm practices. For example, an improved variety of corn might increase the yield 5 bushels per acre. The gain from this improved practice might be more than offset by the decline in price occasioned by the surplus corn. Similarly, improving the soil might increase the yield another 5 bushels per acre and the advantages gained from both these improved practices be more than offset by the decline in the market price of the corn. This indicates that volume should be reduced consistent with demand, that price might be increased. But how should this be most economically done, by curtailing yields per acre, or decreasing acres? Man is confronted with the necessity of making a living, and our country is so composed that where production might be curtailed in one region, it would continue to increase in another, and probably more economically. Also, recent years have emphasized that markets for certain crops are diminishing due to a decrease in demand which means

some farmers are going to have to shift to the production of other crops.

Reducing the acreage of certain major cash crops on farms, or shifting from one crop to another in a community, involves the changing of many practices in farm economy simultaneously, and is far more complicated than simply encouraging an improved practice. These questions logically arise as a result of reducing acreage: (1) can I get sufficient income from the change to support my family? (2) if not, simply as a result of reducing a crop, what other crop can I grow to take its place that will provide income necessary to meet farm and living obligations? (3) to what other crops is my farm adapted? Furthermore, the change from one crop to another may mean added expense for equipment, etc. Can the farmer afford to make this expenditure in light of the increased income that may be expected from making the change, or would he be better off just to go on with his old plan? These and many other questions have to be answered in suggesting changes that rather drastically affect the entire farm and home economy.

It seems to me the next step in extension teaching is the coordination of all these improved farm practices into a program for regions, and that extension agricultural programs must be projected from this point of view. For certain regional areas it is possible to prescribe in a broad general way certain combinations of crops and kinds of livestock, fertility and cultural practices best adapted to the regional area, which will result in the most satisfactory income. In these areas will be found some farmers practicing a system of farming that produces income considerably above the average. This indicates that they are operating efficiently, and carrying on a system best adapted to the area. With these farmers as a guide it is then only a matter of encouraging many other farmers with similar conditions to adopt the same practices.

Within a regional area will be found many different types of farms, different in size, soil conditions, moisture, fertility, number of members in the family, aptitude for growing various kinds of crops and livestock, and in other ways, which means that broad regional programs must be adapted to individual farms. For example, we know that in many instances the limiting income factor to maintain a family decently is too small a farm. If the family hopes to improve its status the size of the farm must be increased. This means that even within a regional area we

must break down the regional extension program to fit farms of varying size and soil conditions and with differing size of families.

We are progressing to the point where we must consider practices, or changes on the farm and in the home, from the viewpoint of the farm and the home as a unit. More and more the farm and home must be considered as the demonstration unit. The greatest weakness and injustice of the AAA programs, particularly the Bankhead cotton control program and the Kerr-Smith tobacco control program, were that they simply prescribed a horizontal cut in acreage and did not consider the size of the farm, the acreage the farmer had in these crops, the size of the family, and the number of acres of cotton, or tobacco it took to provide sufficient income to support his family. On some small farms the enforced reduction worked a real hardship.

As has been said many times, farming is a way of living. The farm and the home cannot be disassociated from each other. The income from the farm maintains the family and controls the standard of living of the family. If the family's living expenses are in excess of what the farm will produce in the way of income or require too great a proportion of the farm income, there will not remain sufficient working capital for the farm. This further handicaps the securing of a larger income which the farm might produce with adequate working capital.

In home economics teaching, we are encouraging better living conditions. Improvements for the home, or standards of living involving a cash outlay, should not be encouraged on farms which cannot produce the necessary income even with the best of farm management. When this occurs we create discontent and unhappiness, rather than satisfaction and contentment. Similarly drastic changes in farm practices may seriously affect the living of the family and this must be taken into consideration in making recommendations in farm economy. All this means that there must be a home economic, or home program coordinated and reconciled with the farm program. Farm income must be reconciled with living budgets and the living standards of the family.

On the farm the benefits from the application of one practice depends on the application of another. For example, in certain types of soils we know that lime has very beneficial effects in increasing yields of crops. But, to get maximum benefits, phosphate should also be applied. When lime and phosphate are applied, then the soil will grow legumes. When there are legumes, then there is a place for livestock, and our farm management

records show without question that those farms which have the best incomes are those that have productive soils and the proper combination of livestock and crops. But, when we go this far, there has to be taken into consideration the size of the family, labor available, and the managerial ability of the farmer. It is my opinion that more and more we must be able to diagnose a farm, or, in a general way, farm and home conditions in a region, like a doctor does a sick patient; and then, following such an analysis of the case, prescribe the practice or combination of practices that will bring improvement. This is the highest type of extension teaching, but a type of teaching that more and more rural people are going to demand from extension organizations.

The land banks already are endeavoring to see what can be done by extension organizations to aid delinquent, or about to become delinquent, borrowers to get themselves in the blue ink, instead of the red. And, it is a problem for considerable and careful analysis.

Now the question is how are we going to intelligently coordinate many farm and home practices, which have as their objective needed adjustments, into programs for a region and for the farms and homes in the various regions. First, we have to know conditions in the farms and in the homes that typically prevail in these various regions. We have to know the reasons, many of them economic, and many based on tradition or custom, for the various prevailing farm and home practices. It is much easier to encourage an individual or group of people to try a new practice, if we know why they perform old established practices in a certain way. In every community there are successful farms and others that are not successful, and all degrees of success between these two extremes. Furthermore, it is usually a safe guess that the successful farms in the main are doing the right thing, and we can help those less successful by encouraging them to adopt the system, or many of the practices of the more successful farms. In brief, the more we know of all these facts, the better position an extension organization is in to recommend practices properly coordinated to bring about helpful and needed adjustments, both for short and long-time periods. And we have to approach needed adjustments from a short-time point of view to gradually lead up to adjustment from a long-time point of view.

The best way I know to get the data and information which give us a picture of conditions in regions is from home and farm management records. Data from records on many farms, and from records on the same farm over a long period of years

make possible a fairly accurate analysis of conditions in a region, or on individual farms. Personally, I think that it is on a farm management and home management record basis that we are going to have to plan our extension programs, both for an annual year's work and from a long-time point of view. This, in my opinion, is the only intelligent way to do it. With such a background and as a result of the knowledge gained thereby, then it is possible to fit into the picture other data and information, adjustments in acreage of crops consistent with price prospects, improvement in cultural practices, improvements in the home and all other facts, the application of which may bring improvement.

But, let me emphasize again, before we can intelligently recommend practices or systems of farming, we have to know, in detail, conditions as they exist on farms and in the homes in the regions for which we are prescribing. The best way to get this information is through the farm management and home management record route, involving records on the same farms over many years. This is slow work, and takes a lot of time, but I believe it is the most intelligent basis on which to predicate an extension program for the farms and homes in various regions. As we increase our knowledge of this kind, we can make programs better fitted to the needs of people.

Discussion by F. A. Harper

Cornell University

Director Brehm's paper dealt with many interesting angles of this question, and I find myself in no fundamental disagreement. Three points might be considered in more detail, or from a slightly different angle.

The first point has to do with information that would seem to prove a safe basis for recommending changes in the annual program of operation for an individual farm. In most cases, recommendations by extension workers for changes in farm organization should be restricted to changes of a long-time nature. Year to year variations in the farm organization and operation should be made, if at all, only on reliable evidence showing that conditions will temporarily be different from the long-time program best adapted to the conditions for that individual farm. The better farmers, who have already accomplished the longer-time reorganization of their farm business, may be able to make use of information on short-time variations in economic conditions.

The job of economic extension workers in this connection would seem to be (1) analyzing the evidence and distinguishing between short-time and long-time conditions in order to prevent farmers from making long-time adjustments to short-time conditions; (2) give farmers information that will aid them in the proper reorganization of their farm businesses in the light of economic conditions.

It is in connection with the second of these jobs of extension workers,

namely, the individual farm analysis and recommendations for reorganization, that I wish to raise a question for consideration. We know from experience that extension work is far more effective when it gives some specific information to each individual farmer, tempered in the light of his individual conditions. That this is particularly true with farm management extension work was brought out by Director Brehm when he mentioned the importance of considering the entire farm as a unit. In farm management extension work we have much yet to be accomplished in connection with the best technique for this job. Too often in the past we have stopped short of the point where an individual farmer gets some real individual analysis. Much of the extension work in farm management has been restricted to giving out results of farm management research work in much the same form as it has been presented in technical form to research workers. Such results of research work in farm management deal primarily with the problem of determining for a specific group of farms what are the most important causes of success or failure. It would seem highly important for extension workers to distinguish between a form of presenting such results to research workers and the use of this information as a basis for extension work with individual farmers. In the former case the results of research work are commonly expressed in some form such as averages for groups of farms. This is an extremely important background for extension work, but the question might be raised as to whether it should be presented in exactly this form to farmers. We know, for instance, that in a specific study we may have identified 95 percent of the causes for success or failure, and have ranked them roughly as to their importance. Yet we know that these average results as listed may be 95 percent wrong in explaining the success or failure of Mr. Smith or Mr. Brown. Individual farm analysis must go beyond the results of research work which simply gives evidence as the most likely places to look for causes of success or failure for an individual farm. Naturally most of the farms will fall close to these average results, but certain individual farmers might be misled unless individual analysis is added to the research information. In other words, extension work in farm management, to be fully effective, must go beyond the point at which research ordinarily leaves it and develop means of giving individual analysis of the individual farms to be served.

It is at this point that the problem arises of what are the best means of doing this job. In other words, what is a safe basis of information of giving individual farmers advice along farm management lines. Naturally, the most accurate analysis could be given if each farm kept detailed account records such as cost accounts, but it is foolish to expect seven million farmers to keep complete cost accounts. Apparently something less than complete cost accounts must suffice as the information on which to base individual farm recommendations. There must be some compromise between intensity of information and extensity of number of farmers to be reached. It appears certain, however, that we must come to the use of more specific information on each individual farm as a basis for recommendations relative to its operation, if farm management extension work is to be fully effective. Experiences in other types of extension work have confirmed this. In soils, for instance, the general soil surveys, which were of a research nature, were only the starting point. Fully effective extension work in soils and the most effective use of the research information awaited

the development of some quick method of obtaining information relative to the soils on each individual farm being considered. Each farmer felt that his soil was different from that of his neighbor and safe advice required specific analysis of his own soil. Usually he was right. It appears likely that these same principles hold with farm management extension work.

The second point I wish to mention is that it was particularly noteworthy throughout Director Brehm's paper to find the emphasis given to the value of farmers' ideas and practices. It is well for us to remember that these ideas and practises are the result of long years of experience by persons who have both feet in the furrow. For an extension worker to take such an attitude is not an admission that every farm is perfect and needs no adjustment to present conditions, but rather is recognition of the fact that these long years of experience by farmers, coupled with their ability to think soundly, may sometimes be nearer the truth than are some of the untried theories hatched at some distance from actual farm operation.

The third point has to do with the attitude prevailing throughout the paper that the effect of any program involving a change in farm organization or operation must be observed and tested from the standpoint of the individual farm and the welfare of farm families rather than solely from some form of external measurement of results. Judging from recent years, when many proposals for curing the agricultural depression have been brought to the front, it seems particularly important for extension workers to keep a clear and definite objective of their jobs. So long as we are working to assist farmers as individual owners and operators, we should test the soundness of any new plans or any recommendations for changes in farm organization solely on the basis of its effect on farmers' net incomes. Net income should not be confused with either price or gross income. We should be careful that this objective is not confused by watching too closely some external objective—no matter how grand it may seem.

As I said at the start, I find throughout Director Brehm's paper apparent evidence that he is in full agreement with these points.

OPERATING PROCEDURE AND PROBLEMS UNDER SECTION 32[1]

J. W. Tapp and F. R. Wilcox
Agricultural Adjustment Administration

An economic discussion of commodity surplus diversion operations should logically begin perhaps with a definition of what is meant by a "surplus." Those who are interested in this subject may recall that this Association several years ago appointed a committee to draft a definition or definitions of agricultural surpluses. For the purposes of this discussion, however, we will use the words "surplus" and "diversion" in the pragmatic sense in which they have come to be used in connection with the operations of the Agricultural Adjustment Administration.

In 1932 the cotton and grain stabilization corporations, which had been set up under the auspices of the Federal Farm Board, pursuant to the Agricultural Marketing Act, held large stocks of wheat and cotton which had been purchased in an effort to maintain prices. On March 7, 1932, by joint resolution, Congress directed the Farm Board to take the necessary action for making available to the Red Cross an amount of wheat not in excess of forty million bushels, such wheat to be used "in providing food for the needy and distressed people of the United States and territories, and for feed for livestock in the 1931 crop failure areas." A similar joint resolution of July 5, 1932, authorized the distribution of an additional forty-five million bushels of wheat and of five hundred thousand bales of cotton for use "in providing food, cloth and wearing apparel for the needy and distressed people and in providing feed for livestock in the 1932 crop failure areas. ..." Subsequently, on February 8, 1933, a further distribution of not to exceed three hundred fifty thousand bales of cotton was authorized.

By these various acts, Congress recognized the desirability, under the conditions then existing, of finding a means whereby large numbers of consumers without purchasing power might utilize a portion of the huge supplies of wheat and cotton which had accumulated with ruinous consequences to the producers of these commodities.

In continuation of this policy and in recognition of the necessity of finding ways whereby surpluses of farm products could

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 30, 1936.

be utilized so as to avoid ruinous prices to producers, much of the agricultural legislation since March, 1933, has vested in the Secretary of Agriculture rather broad powers for the purpose of bringing about "the expansion of markets and removal of surplus agricultural products."[2] The meaning of this authorization was not clearly defined in the legislation and was probably not too definite in the minds of the legislators at the time of its passage. Operations under this authorization during the past three years have given a more precise meaning to these terms as well as to the possibilities of aiding producers and consumers by such programs. In addition to the $100,000,000 appropriated by Section 12(a) of the Agricultural Adjustment Act for administrative expenses and rental and benefit payments, the secretary was also authorized to use the proceeds of processing taxes for surplus removal and market expansion operations. The Jones-Connally Cattle Act of April, 1934, gave specific authorization for programs of this type for the dairy and beef cattle industries.[3] This Act gave a specific authorization to the secretary to make advances to the Federal Surplus Relief Corporation for the purchase of dairy and beef products for distribution for relief purposes. The Jones-Costigan Sugar Act of May, 1934, also authorized the secretary to purchase with the proceeds of processing taxes "not in excess of three hundred thousand tons of sugar raw value from the surplus stocks of direct-consumption sugar produced in the United States beet-sugar area" and to dispose of such sugar by sale or otherwise, including distribution to any organization for the relief of the unemployed.[4]

A number of surplus removal and market expansion programs were undertaken in 1933 and 1934 pursuant to these various authorizations. The most important of these were the North Pacific wheat export program of 1933-34, the butter purchase operation of late 1933, the hog and pork products purchases of 1933-34 and the extensive cattle and sheep purchase program which was conducted in connection with the 1934 drought relief operations. In addition, substantial quantities of surplus agricultural products were purchased during 1933 and 1934 with funds made available through the cooperation of the Federal Emergency Relief Administration and various state relief agencies.

Taken together, these various surplus removal programs ex-

[2] See Section 12(b) Agricultural Adjustment Act, Public No. 10, 73rd Congress, Title I approved May 12, 1933.

[3] Jones-Connally Cattle Act, Public No. 142, 73rd Congress, April 7, 1934.

[4] Jones-Costigan Sugar Act, Section 17 amending Section 16 of the Agricultural Adjustment Act, Public No. 213, 73rd Congress, Approved May 9, 1934.

ceeded in magnitude the very substantial 1932-33 donations of wheat and cotton to the Red Cross, but because of the spectacular nature of the production adjustment programs which were put into effect in 1933 and 1934 these surplus removal operations did not attract wide-spread attention. It should also be kept in mind that the major programs which were undertaken were coupled with concurrent or anticipated efforts toward production adjustment.

When the Agricultural Adjustment Act was substantially revised in the summer of 1935, the powers of the secretary with reference to the removal of surpluses and expansion of markets were more specifically enumerated.[5] Section 8 of the Act was broadened so as to make the authority for surplus removal, expansion of domestic or foreign markets, and domestic allotment payments with reference to basic commodities, coordinate with the power to make payments in connection with production adjustment programs. The responsibility for determining the character and amount of such payments "best calculated to effectuate the declared policy of this title" was placed upon the secretary.

The decision of the Supreme Court of the Hoosac Mills case invalidating the processing tax features of the Act rendered inoperative the provisions of the amended act which related to surplus removal and market expansion, except to the extent that they could be financed from the unexpended balance of the original appropriation of the Agricultural Adjustment Administration.

While considering amendments to the Agricultural Adjustment Act in the summer of 1935, the House Committee on Agriculture also added to the bill under consideration a provision which appropriates to the Secretary of Agriculture each fiscal year an amount equal to 30 percent of the gross customs receipts for the preceding calendar year. This provision is contained in section 32 of the amendments to the Agricultural Adjustment Act, approved August, 1935. Technically, section 32 is not a part of the Agricultural Adjustment Act, but is regarded as separate legislation. It provides for the encouragement of the exportation or domestic consumption of agricultural commodities or products thereof including the diversion of products from the normal channels of trade and commerce and the purchase and donation of products to the Federal Surplus Commodities Corporation for distribution to persons on relief rolls.

Included in the amendments of August, 1935, was also Section

[5] See Section 8(1), 8(2), 8(3), of Agricultural Adjustment Act as amended August 24, 1935.

37 which provided for the continuation of the disease eradication and dairy products purchase programs previously authorized by the Jones-Connally amendments of April, 1934. The surplus purchase operations with respect to dairy products, which have been carried on pursuant to Section 37 are essentially similar to the surplus removal operations which have been conducted under Section 32, and involve similar problems and procedures.

Before taking up the different types of programs which have been developed pursuant to Section 32, it is well to point out that by the time this legislation was enacted in late August, 1935, some of the more difficult agricultural surplus problems which had been so pressing in 1932 and 1933 were temporarily alleviated. This was due in part to several factors such as the 1934 drought, the agricultural adjustment programs, and in part to the monetary, banking and other programs set in motion in 1933 which have contributed toward industrial and agricultural recovery.

It is not possible to indicate in detail the various factors considered in determining whether a surplus diversion program for a particular commodity should be initiated either pursuant to Section 32 or similar authorizations which have been discussed. Among the more important considerations are the following:

1. Relative seriousness of the surplus situation as indicated by accumulated stocks, current or prospective production, prices in relation to those of other agricultural commodities (particularly competing commodities either from the standpoint of production or outlets) etc.
2. Loss or temporary restriction of normal markets—export or domestic. In the case of commodities which have been heavily dependent upon export markets special consideration is given to the desirability of encouraging exports in any reasonable manner in order that trade contacts and other facilities may be preserved pending the return of conditions which may be more favorable to a resumption of normal export operations.
3. Feasibility of expanding domestic or foreign outlets by the methods proposed.
4. Feasibility of the program in returning benefits to producers without at the same time tending to encourage further maladjustment in production.
5. Ability of producers either through their cooperative marketing organizations or otherwise to assume an important part of the responsibility for the program.

For the purposes of this discussion the various surplus diversion programs have been segregated into three types: those for the encouragement of exports; the diversion of commodities into by-product or low value uses; and diversion from the normal trade channels by means of purchases for relief distribution.

Encouragement of Exports

The most pressing problem with reference to our agricultural export trade in the latter half of 1935 was the cotton problem. Exports of American cotton for the year ending July 31, 1935, were about 36 percent below those of the preceding year. While the world carryover of American cotton had been reduced by almost four million bales between 1932 and 1935, it was still excessive. The 12-cent loan program on the 1934 crop had resulted in certain difficulties, some of which were most sharply reflected in the decline in exports of American cotton and a reduction in foreign stocks of American cotton.

In order to correct this situation and at the same time give cotton producers protection from the effects of a sudden modification of the 12-cent loan policy which was in effect at the time the 1935 adjustment program was inaugurated, it was proposed that payments be made to producers in an amount equal to the difference between 12 cents and the average price at the ten designated spot markets on the day they sold their cotton.

While this program was inaugurated under that clause of Section 32 which authorized the use of the funds to finance adjustments in production and was limited to growers who participated in the 1935 adjustment program or agreed to cooperate in the 1936 program, this latter restriction was eliminated after the Hoosac Mills decision of January 6, 1936. The program was approved by the secretary on the basis of a finding that such payments would encourage the exportation and domestic consumption of American cotton.

Following the inauguration of this program and the abandonment of the 12-cent loan policy, there was an immediate expansion of exports amounting to an increase of 44 percent for the last five months of 1935 as compared with the same period in 1934. Domestic consumption which was more closely related to other circumstances also increased about 14 percent during this period. For the full year ending July 31, 1936, exports increased 24 percent as compared with the preceding year and domestic consumption increased about 18 percent.

Since the cotton price-adjustment program was necessarily modified in so far as it related to the participation of growers in production adjustment, its principal significance as to future operations of a similar character relates to the feasibility and limitations on the use of domestic allotment payments as authorized by Section 32 for encouraging the exportation of cotton or

other commodities which are dependent in large part upon export outlets. One of the first observations in this connection concerns the expense and machinery of administration.

The cotton price-adjustment payments of approximately 40 million dollars were made to about 1,200,000 farmers in connection with the sale of approximately 7,500,000 bales of the 1935 cotton crop which aggregated 10,638,000 bales. Total administrative expenses in connection with these payments approximated $3,000,000. Field expenses in connection with the program were probably somewhat greater than they would have been had not the Hoosac Mills decision ended the field work of the staff engaged in handling the cotton adjustment and Bankhead programs, since it was anticipated that the field work necessitated by the price adjustment program would be handled by the same personnel handling the other cotton programs. On the other hand, had it not been for the staff and records which were available in connection with the cotton production adjustment and Bankhead programs the expense of administering a program of this type involving about two million cotton producers would undoubtedly have been much greater. From a purely administrative point of view, therefore, it appears that a program of the domestic allotment type for a commodity so widely grown as cotton is more feasible when it is supplementary to other programs, such as the present Soil Conservation program, than when it constitutes an independent program.

It is conceivable, of course, that the world cotton price situation might again temporarily become demoralized to a degree which would warrant payments to producers in order to enable them to continue producing for a world market at the world price level. Such payments would serve to lighten temporarily the burden on producers resulting from having to sell on the basis of a low world price level and at the same time enable them to retain their position in world markets in competition with other cotton producing countries. Such a program could be utilized as an acute emergency measure. While a program of the domestic allotment type involves certain substantial difficulties and has definite shortcomings, it is the opinion of the writers that, in view of the importance of retaining foreign outlets for American cotton, a program of this type has significant advantages, from a long-time point of view, over any program which results in the fixing of prices of American cotton at an artificial level higher than the world price level.

Other programs which have been designed to encourage the

exportation of farm commodities pursuant to the provisions of Section 32 include North Pacific wheat, dark fire- and air-cured tobacco, Pacific Coast walnuts, papershell pecans, substandard prunes and certain varieties of winter pears. Unlike the cotton payments, exports have been encouraged in the case of these commodities by direct payments in connection with the exportation of the commodities. All of these commodities except walnuts and pecans have long been dependent, in part, upon export outlets.

The program for encouraging the export of flour milled from North Pacific wheat into the Philippine Islands is a continuation, in part, of the larger program which was in effect for the 1933-34 marketing season under which the equivalent of some 28,400,000 bushels of wheat were exported. This earlier program was financed from processing tax funds in order to meet a special situation which had developed in that area by reason of the restriction of export outlets for a type of wheat not customarily used for milling purposes in other sections of the country. Under the flour export program the equivalent of some 863,000 bushels of wheat was sold for export during the 1935-36 fiscal year with an average subsidy payment of 18.5 cents per bushel. During the current fiscal year to date sales for export under the program have been the equivalent of 1,114,000 bushels with an average payment of 15.7 cents per bushel. This small volume of exports is keeping flour from the North Pacific area in the Philippine markets and enables exporters to retain their foreign selling organizations and trade contacts pending the time when wheat and flour from the Pacific Northwest may be more dependent upon foreign outlets.

The succession of short wheat crops which have been produced in this country since 1933 has made it unnecessary to give serious consideration to the feasibility of expanding wheat exports on a large scale by means of an export subsidy. Because of circumstances which are quite generally recognized, however, the possibilities in this connection are believed to be extremely limited. In the event of a large domestic supply, including another normal crop on the Pacific Coast, an effort to regain or expand certain markets for the North Pacific export types of wheat might warrant further consideration, but such an attempt would probably only temporarily alleviate the difficulties growing out of the unbalanced situation with respect to United States and world price levels for wheat.

In cooperation with certain of the tobacco cooperative marketing organizations and the Reconstruction Finance Corporation which had made advances to them, repeated efforts have been

made during the past three years to encourage the exportation of dark air-cured and dark fire-cured types of tobacco. While an offer of a limited payment partially to indemnify for losses on the exportation of these types of tobacco held by cooperative associations has been in effect since June, 1936, no tobacco has been exported under this program up to this time.

The export programs for walnuts and papershell pecans (in the shell) have been in effect for both the 1935 and 1936 crops. The payments with reference to the exportation of substandard prunes were incidental to the diversion of substandard prunes from the regular commercial pack into by-products for either domestic or foreign utilization. In the case of certain varieties of winter pears, payments are being made in connection with the exportation of pears to a limited number of export markets where neither local production nor trade agreements with other countries are likely to induce the importing countries to take retaliatory measures. This program has not been operative for a sufficient length of time to determine its effectiveness in developing new export outlets.

Of these miscellaneous programs, the one for walnuts is perhaps of most significance. Approximately 85 percent of the English walnuts grown in the United States are handled by growers' cooperative marketing organizations. Faced with a large carryover and depressed price situation in 1933, these organizations took the lead in developing a marketing agreement program under the Agricultural Adjustment Act. Under this agreement in 1933 and 1934, 30 percent of the walnuts were placed in a surplus pool and the walnuts from this surplus pool were sold into export markets or as shelled walnuts in the domestic market at a lower price level than that prevailing for walnuts sold in the shell in domestic markets.

In 1935 the combined production of walnuts and pecans was the largest in the history of these industries. Because of the lower price level resulting from this situation and the necessity for minimizing certain enforcement difficulties with reference to the marketing agreement program, funds from Section 32 were used to indemnify the Walnut Control Board for a considerable part of the difference in the price received by it for walnuts from the surplus pool sold for export or shelling as compared to the price for nonsurplus walnuts sold in the shell. These funds were, in turn, paid by the Control Board in charge of administering the agreement program, direct to walnut growers in proportion to

the quantity of walnuts which were purchased from the growers by those handlers who turned in walnuts to the surplus pool.

This type of subsidized pooling arrangement for diversion and export operations has been found to be effective in maintaining reasonable prices to growers and in disposing of a surplus, particularly during a short period in which reduced consumer income has been accompanied by a decline in domestic consumption. Walnut trees, however, live and bear over a considerable number of years and too much reliance cannot be placed upon this subsidy mechanism as a long-time solution of the problem of over-expanded acreage.

A number of other programs for the encouragement of exports have been given consideration by the Agricultural Adjustment Administration during the past year. In most instances a careful analysis of these proposals in cooperation with their proponents has indicated that export subsidies would be ineffectual as a means of regaining lost foreign markets or expanding existing or new outlets. In some instances inquiry has revealed that the initiation of export subsidies might seriously endanger existing foreign outlets some of which have been expanding as a result of the trade agreements program.

Diversion of Products from Normal Trade Channels

Two types of programs are involved in the diversion of products from normal channels of trade. One type of program is concerned with efforts to develop or expand new or relatively new outlets or to exploit a lower-value market for a surplus in order to enhance the value of the total available supply. The other type of program, purchase of surpluses for relief distribution, is designed to encourage domestic consumption by making surplus products available to consumers who temporarily lack buying power. The effect of buying surplus agricultural products for relief distribution is to subsidize domestic consumption among groups now without buying power at the same time developing customers for the future when these groups regain their purchasing ability. This is in strong contrast to subsidizing foreign consumption through export subsidies, particularly with reference to certain types of commodities the domestic consumption of which is lower than necessary in order to meet minimum dietary standards.

Diversion to lower value uses. Programs involving diversion to lower value uses have emphasized a variety of factors. In the

case of cotton diverted into road construction materials, the principal emphasis was upon the possible development of a new large scale use for cotton in the road construction industry. Diversion of surplus tobacco into nicotine products, of peanuts into peanut oil, and of walnuts into shelled walnuts had for their primary purpose the enhancement of the price of the quantities remaining after the diversion was accomplished. In the case of certain dried fruit diversion programs (prunes, raisins, figs and dates), one of the principal objectives has been to improve the quality, and also the price, of the regular commercial pack by diverting the off-grade, substandard, or low-quality portion of the supply into by-products. In the case of two commodities, Puerto Rican coffee and winter pears, payments are being made in connection with the geographical diversion of surpluses—coffee from Puerto Rico to the continental United States and winter pears from the Pacific Coast to markets in the Southern and Midwestern States to which they have not heretofore moved in commercial quantities.

The effectiveness of programs of this type may be considered from several points of view. From the standpoint of effectiveness in improving returns to producers some of the programs have shown substantial results, notably those for peanuts, walnuts, figs, prunes and Puerto Rican coffee. In many of these instances available evidence indicates that the increased returns to producers amount to several times the cost of the program. In general, the improved returns are the result of the higher price level obtained for those quantities which remain for sale in the normal channels of trade. The diversion program in such instances is merely a mechanism, or a part of a mechanism, for increasing the prices received in the regular trade channels without seriously restricting utilization in those channels.

The features of these programs as mechanisms for dealing with emergency surplus situations, therefore, must be distinguished from features looking toward the development of more permanent results as in the case of the development of certain prune by-products or the opening of new geographical outlets for winter pears.

Some students of the industrial utilization of agricultural products contend that an early solution of most of the recurring problems of farm surpluses is to be found in a rapid development of lower-value or by-product outlets for all that our farms can produce. Every practical development in this field should be encouraged. The Bureau of Chemistry and Soils of the De-

partment of Agriculture, several of the state agricultural experiment stations and various private agencies are making gradual progress in this field. There are no convincing indications, however, that this development can be speedily exploited as a means of establishing commercially practicable outlets for large quantities of products.

Diversion to relief distribution. In 1932 Congress considered it good policy to dispose of a portion of the stocks of wheat and cotton which had been acquired by the Farm Board for market stabilization purposes by donating them to the Red Cross for relief use. Beginning with the butter stabilization purchases in August of 1933 the Agricultural Adjustment Administration has removed substantial quantities of a number of farm products from the normal markets through the medium of direct purchases for relief distribution. Prior to the early months of 1936 these purchases were financed from various funds already referred to rather than from Section 32. Approximately $10,500,000 was expended from Section 32 funds for surplus purchases of this type during the fiscal year 1935-36.

Dairy, beef and pork products, fruits and vegetables, wheat for flour, rice, dry beans and peas, syrup, and cotton for mattresses, have figured prominently in the relief purchase programs of the past three and a half years. In considering purchases for relief distribution it has been necessary to consider a variety of special factors in addition to those which have a bearing upon the decision as to whether the situation with respect to the commodity warrants a Section 32 program of any type. The more important of these are:

(1) The possibility of obtaining an actual increase in consumption by this procedure. The possibilities are naturally greater in the case of butter and other dairy products and most fruits and vegetables than in the case of flour or similar staples which are likely to be included in even a minimum food budget.
(2) Relative expense of the purchase program as compared with the benefit received by producers.
(3) Ability and willingness of the relief agencies to handle the commodity.

The extent of the different programs has varied widely. In general, most of the programs have been less extensive in actual operation than contemplated at the time the programs were initiated. In some instances initial purchases together with the possibility of additional purchases as required, in order to maintain a modest price objective, have resulted in stabilization of the

market without actual purchases on a large scale. This was the experience in connection with the limited purchases of cattle made in terminal markets last summer for the purpose of preventing a demoralization of markets on account of liquidation of livestock from the drought areas.

The relative rigidity over short periods of time of retail prices as compared with the prices at the farm of most farm products is a familiar phenomenon. In the case of acute price-depressing surpluses, therefore, it is usually unlikely that the purchases of moderate quantities of such surpluses will increase appreciably the prices paid by consumers for such products over the prices which would prevail at retail without such purchases. Wherever it is possible in such situations to bring about some improvement in producer prices by purchases for relief distribution, there should be little question about the wisdom of such programs from the standpoint of public policy. The alternative is to ignore one of the anomalies of our economic system—surpluses of food products which may mean large financial losses to groups of farmers while large groups of consumers go undernourished for lack of purchasing power. In the case of many commodities, which foreign countries are endeavoring to expand in order that they may be less dependent upon imports, it may also be much more feasible and less expensive for the United States to utilize its surpluses in this way rather than to attempt to force it into the export market by means of a subsidy to foreign consumers.

There are obvious limitations in programs of this type, more than the casual observer would expect to find. But experience of the past three years has demonstrated that there are also possibilities which should be given full consideration in the development of future programs for handling agricultural surpluses.

Operating Procedures

A considerable variety of procedures have been developed in connection with the surplus removal and market expansion programs which have been operated. The object in each case has been to adapt the procedure in such a way as best to attain the objectives of the program. All payments made are subject to audit by an independent unit of the Agricultural Adjustment Administration and by the General Accounting Office. Payments must conform, therefore, to a definitely established procedure.

In some instances the procedure is set forth in a formal agreement between the Secretary of Agriculture and a producers'

cooperative marketing organization, a marketing agreement control committee, or a special corporate agency established for the purpose of operating the program. In other instances it involves an announcement on the part of the Secretary of an offer of payments to be made at specified rates on the presentation of documents with reference to the exportation or diversion of products in accordance with the terms and conditions set forth in the announcement. Procedures in relief purchases include the usual governmental practice of invitations for competitive bids as well as purchases on the basis of an open offer to purchase at a specified price, and purchases on established commodity exchanges at the quoted market price.

In recent programs, for example, it has been found most effective for the purposes in view to purchase butter and eggs on the produce exchanges, to purchase grapefruit and other fruits and vegetables at country shipping points f.o.b. cars from the shippers, at a specified price per unit with a requirement that the producer receive so much per unit, and to purchase certain miscellaneous products such as sugar cane syrup direct from producers. Dry skim milk and cheese have, on the other hand, usually been purchased on the basis of competitive bids submitted in accordance with usual governmental practice.

The use of competitive bids in the purchase of many commodities, particularly those marketed in unprocessed form, may tend to "bear the market" and thereby defeat the main objective of the program, higher prices to growers. On the other hand, it is possible in some instances to improve prices to producers by purchases of processed products from handlers at a specified price, with the handlers submitting competitive offers to purchase from producers an equivalent or greater tonnage of raw products. In still other instances it has been found desirable to make direct purchases of raw products from producers or their organizations, and contract for processing on the basis of competitive bids. The nature of the commodity and of the established marketing machinery, the competitive situation in the industry, the inventory position of handlers at a particular time, the extent of organization among producers, and other factors have to be considered in determining the procedure to be followed.

Traditionally the purchase of supplies by the Government is conducted with a view to minimizing the cost of the purchases to the Government. The use of the various procedures referred to is not inconsistent with this requirement. The use of the pro-

cedure best adapted to accomplish a particular objective as to producer price level, or as to the diversion of particular quantities of qualities of products, will ordinarily be less expensive to the Government when measured in terms of the total cost of the program than would a procedure based upon the traditional use of competitive bids.

In the procurement and distribution of surplus agricultural products for relief use the Federal Surplus Commodities Corporation has performed a useful function. This corporation, operating under a Delaware charter as a nonprofit corporation, serves as an intermediary between the Secretary of Agriculture and the various state relief or welfare agencies which undertake the responsibility for the local distribution of commodities to relief clients. The corporation requires that the commodities so distributed be in addition to and not in lieu of other forms of relief provided by the various local agencies. Special requirements are established with respect to particular commodities from time to time in order to minimize the possibility of interference of relief distribution programs with the normal channels of trade.

An essential element in the handling of many of these programs is the timeliness of the operations, including reasonable promptness in making payments. In some instances it is much cheaper to prevent a demoralized market by timely purchases of a substantial nature than to try to bring about improvement after a decline has occurred. In other instances it may be necessary to allow prices to decline to abnormally low levels before producers and others will recognize the impossibility of maintaining an artificial level of prices through the assistance of a moderate surplus diversion or purchase program. In the case of commodities which have a two-way outlet, such as fresh shipment or canning, it may be possible to improve the price level to producers through a moderate purchase program which gives the producer an alternative outlet for a small surplus at a stable price level.

Promptness in making payments in connection with the programs is necessary in order to avoid dissatisfaction among producers and handlers, or even loss of confidence in the entire program. In a few of the early programs the lack of familiarity with procedural requirements, the necessity for development of new procedures, and other circumstances incidental to hasty operations of an emergency character led to certain delays in payments which have been largely eliminated in recent programs.

During November and December for example, about one thousand cars of grapefruit were purchased in Florida and payments to shippers have been effected more speedily than in the case of normal commercial transactions.

The maintenance of flexibility in operations is vital to the success of many programs, particularly those dealing with perishable commodities. Purchase operations may have to be rapidly expanded or rapidly curtailed in order to accomplish the joint objective of surplus removal and reasonable improvement in returns to producers. It is quite as important to avoid unnecessary purchases or excessive diversion as it is to refrain from attempts at impossible objectives in the face of overwhelming supplies in relation to the quantities which can be disposed of effectively.

Finally the procedures must be continually examined from the standpoint of their effectiveness in safeguarding the benefits of the program to the producers of the commodity. Where producers' cooperatives play an important part in the program this is usually less difficult of accomplishment than in those cases where producers are totally unorganized.

Conclusion

A broad policy for the nation's agriculture must include programs designed to aid farmers in dealing with acute surplus problems, whether occasioned by unusually favorable growing conditions, over-expansion of production or sudden changes in conditions affecting domestic or foreign outlets. In recent years rapidly changing conditions with respect to domestic and foreign demand and alternate extremes of huge surpluses and reduced production due to severe drought have emphasized the necessity of approaching the problem of farm surpluses with flexible programs adapted to a variety of conditions.

Market expansion and surplus removal programs cannot be relied upon as effective substitutes for production adjustment in dealing with certain types of chronic surpluses which require more far-reaching measures. On the other hand, in certain agricultural industries such programs, even though limited in effectiveness, represent the most practical means of supplementing the efforts of producers and their marketing organizations in preventing excess supplies of products from leading to the bankruptcy of farmers.

There is little evidence to support the views that either the widespread use of export subsidies or the rapid development of extensive by-product or low-value uses of farm products can

be relied upon as *the* solution of the recurring problem of farm surpluses. In a modest way programs of this character are proving of value in dealing with surpluses of a temporary character. In view of the experience of this country during the past century with some of its infant industries, however, it is desirable to accompany all such programs with continuous scrutiny in order that their weaknesses and possibilities may be recognized and the programs modified accordingly.

Finally, during the last three and a half years a direct attack has been made on one of the anomalies of our economic system—the inconsistency of farm surpluses which tend to pauperize farmers while large groups of consumers are suffering from the lack of adequate food and clothing. The utilization of such surpluses so as to benefit both farmers and undernourished consumers, prevent waste of food supplies and bring about a net expansion of food consumption by those who are in need, represents a forward step in public policy toward agriculture.

COMMODITY SURPLUS DIVERSION AND AGRICULTURAL ADJUSTMENT[1]

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Fifteen years ago next month two notable gentlemen brought, personally, to Washington a plan for "equality for agriculture" worked out in elaborate detail, and embodying the principles which for six successive years constituted the well-known McNary-Haugen bill. It may be taken for granted that those interested in the general subject of agricultural relief know the essentials of this proposal. Concerning its implications there was always a wide difference of opinion. The most vital feature of this proposed measure was the two-price plan supported by an equalization fee, which operating by means of a nationally controlled dumping program, was designed to create a degree of scarcity which in turn would compel and maintain a desired price, i.e., the world price plus the tariff. This price to be reached by these means was not unlike that of the AAA—prewar parity. Speaking of the early days of this struggle, the most outstanding, courageous, best-informed, uncompromising advocate of the bill, the present Secretary of Agriculture, makes the following unsolicited confession: "The feeling was in those days that there was an inexhaustible and complacent foreign market on which goods could be dumped at a low price without fear of retaliation." Nothing was ever truer, and no truth could be better expressed. The only wonder is that so transparent a truth was not more clearly seen, or seen through, at the time. It was understood well enough by great numbers of the more disinterested writers and thinkers, but the advocates were not in a mood to council with critics. Even the opponents of high tariff, after joining with the two-price group, found it expedient to merge forces with the old guard in putting on the books, in 1930, the latest and most lamentable example of American unstatesmanship. The Smoot-Hawley tariff act probably did as little as any general tariff act of modern times, agricultural or industrial, to keep goods out of this country, but was infinitely more effective in keeping our goods out of other countries. It was the condition of world trade, and our position in it, which inspired the Secretary of Agriculture to admit not long ago that: "By 1931 it had

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 30, 1936.

become apparent to the more intelligent supporters of the McNary-Haugen bill that export dumping would not work, not with importing European nations desperately trying to support their own farmers' prices." Even so, there had previously been plenty of signs portending the storm of protest and opposition so visible in 1931 to the select "more intelligent." There had been a cloud, like a man's hand, to be seen at any time, rising out of the rough seas of 1922 to 1929. The reason why the reformers of that time did not see it was because they were not looking for it. There was more blue sky than cloud, and such being the case they predicted fair weather. The discernment of the storm by "the more intelligent," after it had broken with unprecedented fury about their ears reminds one of a comment apropos of a somewhat like situation pictured in a passage in the Bigelow Papers: "It takes a mind like Dannel's, fact, as big as all outdoors, to find out that it looks like rain—arter it fairly pours."

But is not all this water over the dam? Then why bother about it? Because, while we cannot redirect the water that is over, we still have an interest in the dam, and much more water will go over it, or, in the language of the title of this paper, be diverted.

It was probably inevitable that certain "die-hard" reformers should insist on bringing this item of salvage up from the defeat of the past in order to make it possible, should worst come to worst, that they might "hunt up the very last ditches to die in." These supporters of the export subsidy were the very same men who had been raising bitter complaints against the relation of agriculture to the tariff. Now they cast in their lot with the high tariff supporters and said, "let us share the good things of life on an equal basis." Very smart. It was a case of homeopathy—curing like with like. When all have protection, nobody has protection. It may do to tell that to an orthodox classicist, but do not expect anyone who has even a trace of the institutionalist doctrine in his make-up to accept a word of it, as applied to the situation of America a decade ago. Nevertheless we have inherited from that decade a miniature edition of the export subsidy program, to which we have added another item.

It is not at all strange that there was insistence, by the makers of the AAA that some features of the McNary-Haugen plan be included. The leaders of the former attempt figured largely in the advices of the later program. In the original AAA it was provided that we might use money arising from processing taxes in part for "expansion of markets and disposal of surplus agricultural products." To this possible source of funds for surplus

disposal there were added shortly funds from the Federal Emergency Relief. Then came the drouth funds in 1934, followed in 1935 by an amendment providing for the disposition of products acquired through the agricultural commodity loan provisions, followed again by an amendment[2] to become effective six months ago (June 30, 1936) making the export subsidy and internal diversion plans more specific and appropriating to their support an amount equal to 30 percent of the customs revenue receipts of the year next preceding. Broad powers were provided under these several amendments, and interpretations whereby almost any agricultural product might be purchased by the proper government corporations to be exported at a loss, or sold, or donated, to the public relief agencies. The amount of customs revenue funds available for the current year to be used in this manner is $92,000,000. The sum is likely to be around $15,000,000 larger for the following year.

It should be noticed in passing that the old export subsidy in its early proposed form included within its scope seven or eight commodities only (basic), but these few amounted in value to half the income from our six million farms, and left but a small proportion of the farmers entirely out. The present export subsidy, a sort of foundling taken in more or less reluctantly to the household of the New Deal, comprises also a considerable list of farm products within its possible sphere of action. But so far as application goes, up to date, it embraces but a little of what was projected ten years ago, and at best must be a great disappointment to those who have fathered and fostered it along. Instead of including within its compass half of the farm output, or according to the 1928-29 version, potentially all farm output involved in marketing transactions, it now includes a paltry one or two percent. We have, in practice, substituted minor products for major, altogether aggregating less than a twentieth of the total output, in place of a half, or the whole, embraced within the ample compass of the McNary-Haugen bill at its best.

Before going further with an appraisal of merits and demerits in general terms it will be well to see how the matter looks face to face. Not knowing what the weather was going to be for the next three years we decided in 1933 that we had too much wheat. What is more, we had. Our poorest wheat was the most plentiful, and farthest from market. This was the whitest wheat grown, that of the Pacific Northwest. We subsidized the export of about 28,000,000 bushels of the wheat of this region, paying from 15

[2] Publication 320, 74th Congress.

to 23 cents a bushel to get it out of the way. It is to be assumed that it was a good thing for the wheat growers who received it. In any case they had an income from wheat augmented by 30 percent or such a matter. It will probably encourage them to continue to grow low-grade wheat in somewhat greater abundance than the market demands, but under the assumption that *laissez faire* is dead, or should be, it may be better for society to assume the burden of such readjustment as may be needed rather than to punish the growers with a low price. This first important instance of the surreptitious operation of the disguised McNary-Haugen measure is worthy of attention from several standpoints. First, we did not take the wheat to markets where it was likely to provoke immediate retaliation. Secondly, we did not export enough, because of the failure to find enough demand for it within the markets where it found a welcome, to relieve the home market from the depressing influence of the low grade wheat shipped eastward across the mountains. Without the subsidy there is more reason to believe that a greater quantity of soft white wheat would have been left in distress in the Inland Empire than that any considerable additional quantity would have been shipped to the east of the Rockies. This is, of course, a speculative point. Thirdly, we encouraged the further, continued, production of our poorest wheat, and strengthened in the minds of the growers the conviction that they are entitled to a parity price for what they grow without too much regard for the demand for the product. Fourthly, we loaned, on especially favorable terms, to the Chinese government, the money with which they bought a large portion of this subsidized export wheat. Fifthly, the Chinese did not really want the wheat, and took it under protest, not even lowering their own tariff bars to allow it easier ingress. Thus far they have paid us neither cash for the wheat, nor homage for the generous prices and terms, at which and on which, it was sold to them. Ten years ago the most spectacular farm leader of national importance ever known, apropos of the difficulty of finding a market for surplus farm products, asserted that he could sell all the wheat we could spare to the Chinese. It is now doubtful that the Chinese would be willing to take our normal surplus as a gift—or at least they would ask us to stand the transport costs and pay the duty.

Under the McNary-Haugen proposals fees might easily have been five or eight times as great as the customs revenue allocated to the present diversion plan. Thus were we undertaking the same work then projected, but financed as at present, it would wipe

out all tariff revenues and no doubt require much more. (Back in the days of balanced budgets this would have seemed calamitous.) Taking the money out of the tariff compartment of the treasury is a mere matter of emotion, appealing as it may to those who still cling to the hope of equality for agriculture through the tariff. Should 30 percent of the receipts prove too small for the desired undertakings it will be easy to increase the proportion, or it might be taken from the general treasury with no increased psychic disutility, provided Congress be in the right mood.

There are at least two reasons why but a small amount of money is put at the disposal of the New Deal to be used in financing the disposal of products on the two-price plan. First, the state of the U. S. treasury coupled with the professed wish to balance the budget. Second, the lack of opportunity to export products or to dispose of all of them at home. In other words, the difficulty in finding buyers at any price.

Diversion Within the Country

Not only has Congress come to the rescue respecting small quantities of farm surplus which it seems best to get out of the country, but with at least equal hope of aid to the farmer, has planned and put into effect a program of purchase, with public funds, of quantities of produce to be used in one of two general ways. These are: first, products to be used to supplement relief to the unfortunate; second, the reduction of goods to a lower level of use through some processing procedure whereby the good in question will be reduced to a cheaper price than it would, or should, command in the original state. This implies the expectation that the combined value of the quantity left in the original form together with that turned into a subordinate form or class would be augmented. For example: it may be assumed that in the lemon market X boxes of lemons plus the by-products made from Y boxes are, when lemons are superabundant, worth more than X plus Y boxes sold as fresh fruit. This means, of course, that they are worth more to the producer. Under the domestic diversion operations we have diverted peanuts from the usual channels of consumption to stock-feeding uses, and to oil production, transferring the attendant loss from the peanut farmer to the public, and incidentally have held the peanut in its proper place in politics. It should be noted in passing that it appears to be going into eclipse for a season because of the prompt overdoing of a good thing on the part of the peanut producers.

The most successful *coup* by way of an approach to scarcity through diversion to a lower use was, as a corollary to the slaughter of the six million little pigs, the reduction, not altogether premeditated, of 15 million pounds of edible lard to inedible grease.

Diversion through government forces to home use has been effected in the disposition of a long list of commodities. Wheat, pigs, and peanuts have been mentioned. In addition purchases either for the direct increase of price or under the guise of relieving distress, have been made within the major fields of dairy products, butter, cheese, and milk; beans and peas; eggs and fish; apples, oranges; cotton and cotton goods, et cetera. Mention should also be made of the combined drouth and unemployment relief in the purchase and processing of cattle and sheep, and the distribution of the products, concerning which there can be only commendation.

Underlying Principles Considered

Diversion to Foreign Markets. Respecting relief through subsidized exports, it may be said that that line of attack is hardly operative at present, due no doubt to the combined influence of the drouth and the New Deal in the reduced pressure of food on population. This breathing spell in the battle of farm relief should give us a chance to carry out some major plans in the near future. We have again proved that it is difficult for a nation to sell abroad more goods than it buys; that it is not easy to raise prices at home to some artificial level and at the same time promote sales outside the country. However, a combination of drouth and nationalism is effective. We do not now export wheat in any considerable quantity because, first, we have none to spare; next, the price is above the export level; and finally, nobody wants our wheat. What will happen when nature smiles on us again, labors along with man, as it were, and we garner another 900 million bushel wheat crop? This will occur simultaneously with other bumper crops. Then relief purchases will do no discernible good so far as the producer and his price are concerned; then the tariff of 42 cents will be a mockery; then exports will, unless the temper of the world and our relationship to it undergo a pronounced change, be more difficult than now; our granaries, normal and abnormal, will be full; and if this series of events should happen on a leap year the Republicans, no matter how genuinely bankrupt in platform and candidate, will return to power and patronage. In short, the diversion plan, as it now

stands, is designed to glean fragments, not deal with the main output.

The most astonishing words ever uttered in public by the Secretary of Agriculture are found in his recent Farm Bureau address: "The most deadly weapons of economic warfare are embargoes, export subsidies, and exchange controls. Long continued, these lead inevitably to such a state of unbalance and misery in certain nations as to cause those nations in their anguish to go to war." Some such statesmanship as this on the part of farm leaders during the years 1922 to 1929, while no doubt failing to bring to pass positive and definite results, would have prepared the way for the New Deal as nothing short of direct divine guidance could have done. But during those years no plan other than the diversion of the surplus into the capacious and supposedly yearning, yawning, maw of Europe was given quarter by the agricultural reformers. Subsidized export was the "be-all and end-all" of the leaders, and mainly so of the led. This group of leaders put up a feeble fight against the Smoot-Hawley atrocity, one of them remarking in answer to a question concerning the possibility of a remonstrance against certain increased tariff rates: "After all they have conceded to us, we are in no position to say anything against such rates as they propose for themselves." And now the diversion of American farm products to foreign ports, aided by a subsidy, must be made on minor products to minor markets.

Diversion at Home. As to diversion within the country there is little to be said against it in principle. There is, however, much to be said concerning the manner in which the diversion is to be conducted, and the results toward which the aim is directed. There are now apparently two guiding purposes, not one, either of which may at any time be primary. These are, of course, relief of the farmer on the one hand, and relief of distress among the unemployed on the other. The first in importance so far as can be seen in the language of the act itself, and the manner in which it has worked out thus far, is the first named: farm price relief. To carry this to its logical conclusion puts responsibility upon the Administration such as it has not yet borne, or at least not openly, or for long. Most assuredly it was not primarily feeding the hungry or clothing the naked that prompted to passage of the amendment in question. For every act of purchase or subsidy, or proposed purchase or subsidy, the AAA must make two important decisions: First, is there a surplus and is the

price too low? Second, how much too low is the price, and for how much of the commodity can an outlet be found, not to mention the somewhat important question of price, or no price, at which the products shall be offered to relief agencies?

Over and again the sponsors of the AAA speak of fair prices, fair distribution, and the like. We want no other kind, yet there is back of this ingratiating, soothing suggestion of an ethical rule, merely muddy thinking, and vague convictions. Who shall decide when the pointer of the balances just touches this magic mark? One cannot go through any list of prices, varying as many of them do from cheap to dear, from undesirably low to cruelly high, and designate with even approximate accuracy the degree of fairness, or lack of fairness, in the different price items of the list. Neither prices of goods, nor scales of wages, are as yet set by professors, or practitioners, of ethics. Though ethics may play a real part in the attitude of the bargainers toward market forces it does not determine that potatoes, for example, shall be thirty cents or two dollars. One price may be, at the time it occurs, as fair as the other, yet no producer is satisfied with the low price, and no consumer with the high price. What the amendments to the AAA propose in reality is not to revise the ethics, or fairness, but to give the AAA the power, limited to be sure, of pegging prices. The only definite statement that can be made about a fair price is that it is set by authority. Any other "fair" price is a matter of opinion, and open to argument.

Thus under the latest amendment to the AAA our judge, or jury, in Washington, charged with the responsibility of deciding how much subsidy to grant to the sweet potato growers; how much export bounty to offer the pecan growers; or how much money to put into the salvaging of frosted grapes and the manufacturing therefrom of jams to be used to make the dry bread of charity somewhat more palatable, are the makers of fair prices, with authority.

There will be pressure, powerful pressure, to compel the Federal Surplus Commodities Corporation to buy another million or two bushels of onions at a fair price this winter, but thanks to the drouth of the summer of 1936, the Federal Surplus Commodities Corporation will not buy much farm produce under count one of this purpose, viz., to relieve market congestion. They should not have occasion to buy much under count two, i.e., for diversion to other than normal channels or uses, because nearly everything grown is wanted, and at prices approaching parity. They will

not buy at high prices for the supplementary relief of the unfortunate because such buying as they do in this capacity is a function of producer troubles, which this year hardly exist in the form of low prices. True there is a surplus of citrus fruits, but the citrus growers can handle the matter skilfully. Looking ahead, however, there will be much work for the Surplus Corporation. We already have surplus plantings of grapefruit and orange trees; pecan and walnut trees; raisin and table grape vineyards; not to mention the greater ease with which annual crops can respond to price.

If we are not feeding and clothing the victims of the depression properly, we should do so, and it should be through direct, positive and unified action; not through backdoor farm surplus when, and if, it occurs. A forthcoming book[3] will say: "Such operations [i.e. government purchase of surplus, minor or short-run] have shown their efficacy in supporting prices and there is no question but that supplies so acquired could be added to the consumption of the poorer classes of our population to the great improvement of their physical well-being." All will subscribe to that statement, and we shall always have a "poorer class," even though not necessarily a poor class. But can we afford that wholesale entry into the distribution of government largess which might lead to a reenactment of the old paradox:

> "Undone by goodness! Strange unusual blood,
> When man's worst sin is, he does too much good!
> Who then dares to be half so kind again?
> For bounty, that makes gods, doth still mar men."

A distribution of such surpluses as we are sure to have among "the poorer classes" will if put into effect prove such a plunge into Economic Democracy as has never been made by a people practicing democracy. In simple language it would mean: There being some farm surpluses, due to unwise planning, or unfortunately good weather, and there being some unspent money at our disposal, we will know whether or not there may be some part of our population with deficient diets, and if there be such we can do two good turns, raise farm prices and increase the bread, butter, or sweets in the diet of our poorer classes. And here again rises the spectre of what is a fair price; whose prices most need boosting? If the new supplementary price and distribution plan works, over a period of years, the 30 percent

[3] Three Years of the Agricultural Adjustment Administration, E. G. Nourse, J. S. Davis and J. D. Black. Brookings Institution, 1936.

of tariff revenues will look like 30 cents; the need for food on the part of the eater will be blended with, and in part measured by, the producer's need to sell; and over the portals of the party in power shall be written: "The ox knoweth his owner, and the ass his master's crib."

The use of tariff money to promote exports seems logical, but not hopeful. Its use to promote internal consumption through government bounty and largess seems hopeful but not logical. It is a dangerous policy shot full of confusion; possibly not very dangerous because of its present small compass.

Reciprocity Trade Agreements. Outside the province of this paper, but so closely related to the subject as to require notice, is the matter of the recovery of our lost treasure in foreign trade. We have made much progress in this direction but the slowness in getting started, and the failure to make greater headway, are, admittedly, the occasion for the recent diversion amendments, and developments. The Democratic party appeared to face both ways respecting the age-long question of the tariff in 1932. The platform asked for competitive, revenue yielding tariff. This we had had, presumably, for years. It also demanded reciprocal agreements. These should have been pursued more promptly, and more vigorously, which is to say more hopefully.

The present administration, heir to a positive, logical, liberal, tradition respecting international trade policy, permitted a third of its first 4-year period to pass before asking Congress for the privilege of negotiating trade agreements, mutually advantageous. With a heritage such as that of the Democratic party, received from and through its own lineal ancestry, with a liability in the form of an unwelcome legacy from the preceding opposing administration, the year and a half of inaction is hard to explain. It is of no use to say that there were other and more pressing duties at hand. It was easy to get funds; the personnel was obtainable; the desirability of action was neither questioned, nor questionable. Moreover, every day's delay meant a tighter closing of the gates, and heightening of the trade obstruction walls to be surmounted. In the meantime we lost, both positively and relatively as a trading nation, our share of world trade falling from 14 percent to 10 percent, during the five years from 1929 to 1934, happily gaining back over half the loss in relative position from 1934 to 1936, due in no small part to conscious and intelligent effort. Concerning the tardy attack, and somewhat faltering attitude of the administration on the foreign trade problem, and with the many earnest, even desperate attempts to force

and enforce ways and means of recovery within the country, the best that can be said to those responsible is: "these ought ye to have done and not have left the other so long undone."

DISCUSSION BY E. A. DUDDY
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I address my remarks in the main to Dr. Hibbard's paper. I agree with Dr. Hibbard that the economic provisions of Section 32 of the Agricultural Adjustment Act are essentially the same as those advocated in the McNary-Haugen bill. Because the McNary-Haugen principle was consistent with, and was intended to function along with a high tariff policy, Dr. Hibbard finds its inclusion in the legislation of the present administration somewhat incongruous. He seems to forget that many of the sponsors of the McNary-Haugen idea have been absorbed into the party in power. What is more logical than that they should bring their philosophy of the market with them? It seems matter of regret to the speaker that the export subsidy as actually used under Section 32 has been less generous in its terms than the old McNary-Haugen bill promised to be. He refers to its use as "surreptitious," and complains of its inadequate application to but few commodities, while at the same time pointing to the recognition, by the present Secretary of Agriculture, of the futility of invoking the export subsidy to force crop surpluses on unwilling importing countries. In this opinion the speaker himself seems to join.

That the export subsidy idea has not been used to a greater degree is not because of lack of power in the legislation, nor because this provision has been deliberately sabotaged by the New Deal. It is rather because an alternative principle has been found for stimulating international exchange, that of reciprocal trade agreements, to the efficacy of which Dr. Hibbard pays a tardy tribute. While such agreements were being negotiated, and their number and importance is increasing, it was patently unwise to make use of a device which could only irritate and provoke retaliation. Our willingness to receive imports under these new agreements is the essential condition which will make increasingly possible the export of agricultural surpluses with the use of a minimum of subsidy.

But Section 32 is not just the old McNary-Haugen bill over again. It recognizes the possibility of diversion within the country to lower uses of the product, and to lower levels of purchasing power, even to the extent of donating to people on relief those surpluses which are unsalable at prices which will pay a "fair" return to the grower. "As to diversion within the country," says Dr. Hibbard, "there is little to be said against it in principle." And at another point he concedes that for purchases for drouth and unemployment relief "there can be only commendation." In view of these expressions at one point in his paper it seems curious to find him at a later point questioning the wisdom of distribution of crop surpluses to relief clients. But this "plunge into economic democracy" which he fears so much has already been taken—not only with respect to the salvaging of crop surpluses but in all the various and ingenious methods of government spending for unemployment relief. To these practices the people generally, with the exception of the people in Maine and Vermont, have given their endorsement. The problem now seems to be not whether we shall engage

further in these practices, but how we shall adjust the conflicting group interests involved.

The distribution of commodity surpluses is just another evidence of a sense of responsibility on the part of government for the economic welfare of an important group of its citizens. There is a fundamental difference in policy between those who believe in this attitude and those who would trust to automatic, impersonal adjustment through freedom of action in the market on the part of individuals—a sort of economic determinism vs. a theory of all-seeing, all-knowing benevolence.

In practice it would appear that what we have is a mixture of the two. Producers push production to the point of no return and then ask the government to rescue them from their folly. This the government is willing to do because it recognizes that agricultural production is subject to hazards of over-production in a peculiar way, because of the unpredictable effect of weather on crop yields; and because the producers bring pressure on the government to insure prices and profits; and because it is that kind of a government.

I am no believer in the automatic action of the market as a remedy for economic log-jams. Removing surpluses, without at the same time encouraging further production of surpluses, and without exposing consumers generally to food shortages, is an engineering job which requires positive planning and performance by capable people who are given the widest possible scope of authority and freedom of action. I am not disposed to quibble about how great that authority should be provided it is directed through proper channels. It is not a choice between no control and government control, but rather between private and public control of the market. In a democratic country, I incline to the latter because if such control becomes unwise, or incompetent, or oppressive, the agents who exercise the authority may be removed or the whole function done away with.

But at this point one begins to see the dilemma in which the Surplus Commodities Corporation is now placed. If it acts to stabilize price for producers of a particular commodity of which there is a price depressing surplus, its very action tends to perpetuate the maladjustment of supply unless there is a corresponding power to exercise some control over production. This latter type of control is, by the decision of the Supreme Court, beyond the reach of the Federal Government. And it may be doubted whether effective control can be exercised indirectly through soil conservation programs.

Furthermore the very nature of the Surplus Commodities Corporation as a politically created authority exposes it to the pressure of well-organized economic blocs of producers whose bias is quite naturally in the direction of stabilizing prices at a level which will give everyone a living. I think there is much to be said for positive attempts at price stabilization of agricultural commodities with governmental cooperation provided the government agency is responsive not only to the needs of groups of agricultural producers, but is also sensitive to the less well organized needs of consumers, most of whom live in cities.

The diversion of crop surplus to the people on relief is a gesture in this direction, even though the interest of the commodities corporation in this group of consumers is, confessedly for the purpose of maintaining prices to consumers who have purchasing power. But how about this group

which has purchasing power, would they not buy more of these products which have been made the basis of stabilization programs if prices were lower? The evidence seems to indicate that for many products the demand is elastic. I am not taking the position that the prices which producers are now receiving are "too high," but that the technique of stabilization inevitably tends to "freeze" the margins which are returnable to both producers and distributors and thus removes the incentive to lower costs. The easier and more immediate remedy of reducing supply is resorted to. If economic engineers are going to intervene in the process of price making it would seem reasonable that they should bring pressure in the direction of lower costs and larger consumption as a long run policy. The possibilities of diversion as a means of maintaining a high price level for commodities of inelastic demand are at best limited in character. An unintelligent use of a stabilization policy without effective control of production will tend to perpetuate the bad condition it is intended to cure.

All of which would seem to argue for, not only the consideration of the interests of consumers, but their participation through representation in the initiation of stabilization operations. I have no doubt that the present administration has been mindful of consumer interests, but that the Surplus Commodities Corporation can continue to successfully resist the pressures of politically powerful groups of producers without the active moral support of consumer interests is to be doubted.

A government which accepts responsibility for the economic welfare of its citizens must think of them as members of a single great family. No single group should be permitted to advance its interests by exploiting other groups. The interest of the general welfare should prevail.

SELECTION OF AREAS FOR SAMPLE AGRICULTURAL ENUMERATIONS[1]

J. B. SHEPARD
BUREAU OF AGRICULTURAL ECONOMICS

I. HOW THE STATISTICS MOST NEEDED COULD BE SECURED

There seems to be a steadily increasing number of people who feel that the annual enumeration of all of the farms in selected areas should be one of the next steps taken to secure better agricultural statistics, but as yet there is no general agreement regarding the ideals to be kept in mind, or on how the statistical problems should be met.

We are here today to discuss one of those statistical problems and that is how should we select the areas that are to be enumerated as samples of the whole.

But in picking sample areas the first thing to consider is what are the purposes to be served, and when one considers the whole agricultural situation and tries to calculate statistical needs over the next several years, one realizes that times have changed.

New Statistical Needs

Statistics on agricultural production were originally developed to assist in the marketing of agricultural products and up to a dozen years ago current agricultural statistics were used primarily by those who were buying or selling grain or cotton. Today we are trying to teach farmers everywhere to adjust their production to the prospective demand. To do this with full success we need better figures than we have now and better figures than we are likely to have until there are some radical improvements in the raw material with which we work.

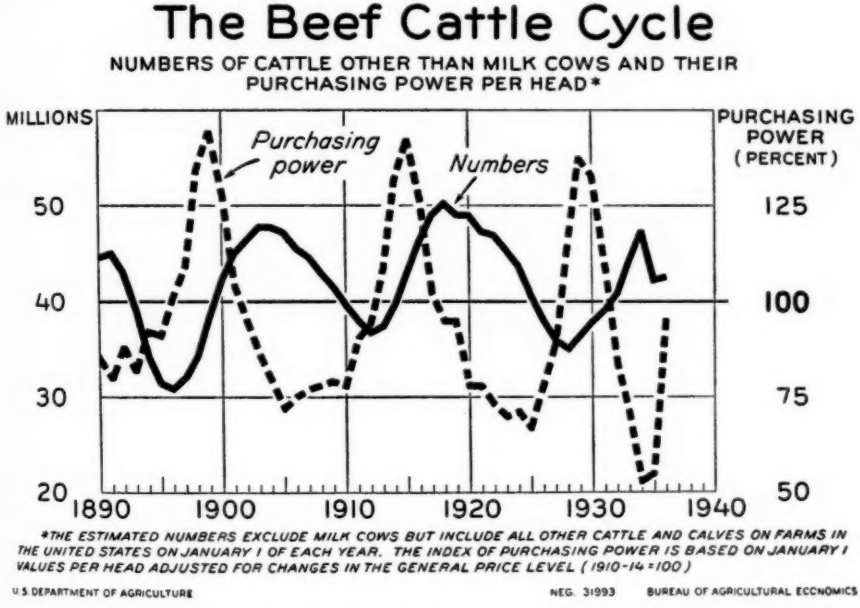
We are also launching great social experiments affecting agriculture. The outstanding loans to farmers by the Farm Credit Administration now total well over three billion dollars and are equal to about 10 percent of the value of all our farms at the time of the last census. Collections on this debt, including principal and interest may reach $200,000,000 per year. The 1936 Soil Conservation program may cost, on the average, about $70 per farm for all farms in the country. There is talk of governmental insurance of principal crops. If crop insurance is added to soil improvement payments and loans, the total payments to

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936, in Joint Session with the American Statistical Association.

farmers may approach a billion dollars per year. These undertakings, to be successful over a long period of years, will need statistics as they have never been needed before. They require such detailed figures that present statistical agencies are utterly unable to supply their needs with present sources of information and present funds.

Cycles of Production

We are also passing out of one of the depths in the business cycle which has caused great suffering and great social and po-


The Beef Cattle Cycle
NUMBERS OF CATTLE OTHER THAN MILK COWS AND THEIR PURCHASING POWER PER HEAD*
MILLIONS
PURCHASING POWER (PERCENT)
Purchasing power
Numbers
50
40
30
20
125
100
75
50
1890
1900
1910
1920
1930
1940
*THE ESTIMATED NUMBERS EXCLUDE MILK COWS BUT INCLUDE ALL OTHER CATTLE AND CALVES ON FARMS IN THE UNITED STATES ON JANUARY 1 OF EACH YEAR. THE INDEX OF PURCHASING POWER IS BASED ON JANUARY 1 VALUES PER HEAD ADJUSTED FOR CHANGES IN THE GENERAL PRICE LEVEL (1910-14=100)
U.S. DEPARTMENT OF AGRICULTURE
NEG. 31993
BUREAU OF AGRICULTURAL ECONOMICS

Cattle prices tend to be lowest when the farmers who are raising cattle become too much discouraged and increase the beef supply by marketing part of their breeding stock. Adequate information regarding cattle numbers and marketings would lessen the severity of the cycles.

litical upheavals all over the world. We have also witnessed during the last 20 years some exceptionally sharp changes in the general level of prices. These changes in business and in prices have brought about a realization that these cycles are recurring and may tend to become more severe and more disturbing unless we can measure the factors involved and have more people prepared for the changes that are due.

This applies as much to the cycles of agriculture as to those of industry. Here is a chart showing the beef cattle cycle. The

heavy line represents the inventory number of cattle other than milk cows on farms on the first of each year. It shows a cycle of about 15 years that was rather smooth until disturbed by the recent droughts. The dotted line shows the variations in the purchasing power of cattle, as measured in prewar dollars. The important point to note is that cattle prices have been the highest, compared with prices of other things, not when cattle numbers were the lowest but when farmers were increasing their herds by holding back breeding stock. Likewise relative prices have been lowest when cattle raisers were too much discouraged and were selling off their breeding stock and getting out of the cattle business. Farmers' efforts to adjust to high prices have made prices higher and their efforts to adjust to low prices have made prices lower.

Here then is a clear-cut cycle which vitally affects 5½ million cattle producers, and which affects all of us as consumers. It is based on the normal search for larger profits but it is timed by biological factors. If we had adequate statistics on cattle numbers and marketings and particularly if we knew accurately how much farmers were holding back or how much they were liquidating breeding stock, the basic factors of this cycle could be measured and plotted from month to month as the Weather Bureau plots the hourly progress of a hurricane. This cycle moves so slowly that any farmer would have time to trim his sails if he knew when it would strike him. Our Bureau sends out economic storm warnings from time to time, but with present limited sources of information we cannot measure current changes accurately enough to do what we know ought to be done.

I am not letting out any secret when I say that when we received the results of the 1935 census showing a 14 percent increase in the number of farms listed as reporting cattle, we revised our estimates of the number of cattle on farms January 1, 1935 by eight million head. In the South Central States, where we were misled by the small increases shown in the number of cattle assessed, the revision of the estimates was just about 40 percent. While part of the error appears to have been in the previous census on which our estimates were based, the size of the correction shows why we feel that many of our estimates are not precise enough to meet present day needs.

Present Statistics Not Adequate

Such problems as this cattle cycle cannot be solved by a census every five or ten years. The information is needed currently,

and the census records, as they stand, have to be used with caution even for determining the changes between census years. This is due chiefly to the fact that the livestock records of successive censuses have lacked comparability because only one out of the last five census enumerations has been at the same season of the year as was the preceding. I shall not go further into the interpretation of census statistics except to say this, that the last census is, in some respects, so much more complete than preceding enumerations that it is difficult to reconcile the differences.

While the interpretation of census reports on agriculture is something of an art in itself, even more care is required to use the statistics collected from other sources. In states where the assessors collect nearly complete records of crop acreages annually, a fairly high degree of precision in crop estimates is possible, except where crops fail after a spring enumeration is made, but in many states the assessors' acreage records vary so much in completeness that one can never be quite sure where the true total lies. Assessments of livestock have been statistical life-savers in some states but in other states they completely failed to show changes during the depression period.

Records of shipments, market receipts, ginnings, etc., are, of course, invaluable for showing the production of cotton, sugar beets, rice, tobacco, and canning crops but for most other crops and for livestock and livestock products such records are more or less fragmentary. The same is largely true of the acreage tabulation made by irrigation districts and certain cooperating groups of producers.

Recently we have had the results of the surveys made in connection with the adjustment and soil conservation programs. Some of these appear to be rather complete and they overrun the census in some areas. When these are available for a sufficient period for proper appraisal and interpretation, they should be of value in the estimation of the items concerned.

Questionnaires Do Not Solve the Problem

While all sources of information are used, our Bureau's estimates of month-to-month changes on the farms are based largely on reports from individual producers. We send out about nine million questionnaires a year. The more important of these are distributed by rural mail carriers. Most of the rest are mailed to voluntary cooperators. They cover a multitude of questions on acreages and yields of crops, stocks on hand, utilization of crops, livestock, prices, incomes, expenses, land values, and farm

population. They provide fairly accurate information on a wide range of problems but they have certain serious defects which we recognize and are powerless to correct.

To begin with, they are never fully representative. Even if an inquiry could be addressed to every farmer, those replying would not be representative. They would be the more intelligent and more competent farmers. They would have larger acreages, larger yields, and different crops than average farmers. This affects their reports in a multitude of ways. Where a new crop such as lespedeza is being introduced into a state and where average farmers have, say, 0.1 percent of their land in the new crop, those who return cards to the rural carriers may have twice that percentage of their land in the crop and regular crop correspondents may have four times that percentage. Where the acreage of such a crop increases further our correspondents, having more to start with, cannot show the same percentage of increase.

The second big difficulty is that reports from voluntary correspondents never adequately reflect increases or decreases in the number of farms or in the area in farms. Farms left idle submit no reports, and when acreages on individual farms are compared with the acreages grown by the same men on the same farms the preceding year, farms newly occupied or newly worked or greatly expanded are practically all omitted. Outside of a dozen states, we have practically no information between censuses regarding the changes in the number of farms or the area in farms and we have little definite information regarding the area in crops.

A third statistical flaw in our samples is that they come from a constantly changing list. Out of a rural carrier sample of say 150,000 cards from farmers we may be able to match up 30,000 to 70,000 cards from men who reported for the same farms the previous year. To use the rest we have to depend either on each farmer's rather hazy memory of what he grew in the preceding year or on the changes in the proportion of the land devoted to the various crops.

A fourth difficulty with most of our current indications of acreage and of livestock numbers is that, while helpful for showing changes from one year to the next, they are less useful for showing changes over a longer period of years. That leads us to base this year's estimates on last year's estimates, with the result that the errors tend to be cumulative.

Sample Surveys Would Meet Most Urgent Needs

It is realization of these flaws in our material that lead some of us to begin ten years ago to hope for a new venture in agricultural statistics; namely, the annual enumeration of sample areas all over the country.

The usefulness of such sample areas would of course depend largely on the number of farms included, and on the skill, care and speed with which the records are taken and edited, but in general, the indications to be derived from such enumerations could be made strongest where our present samples are weak. They should be more nearly a slice of the cake and less a sample of frosting off the top. They could be designed to provide a measure of the increases and decreases of land in farms. They should reflect most of the important changes occurring in real farming areas. If they are made to cover practically the same land area each year the totals could be compared not only with those of the previous year but with those of the last census year.

For these reasons most of us who are measuring or watching the changing conditions on the farms, including the production of crops and livestock, the income derived from farming, the value of farm lands, the number of people on the farms and the human factors of tenancy, debt, living conditions and the like, are inclined to favor planning these surveys so that they will shed light on those portions of the picture that are now dark.

How Surveys Might Be Handled

The Bureau of Agricultural Economics includes only a small proportion of those who are interested in agricultural statistics, and it is important that these surveys be planned so they will meet the most urgent needs of those of you who are working on problems other than those we have in mind. No one knows who would do the work or what procedure would be followed, but as a basis for discussion let me show what might be done at a cost of a third of a million dollars per year.

With such a sum we could survey sample areas including about 5 percent of the farms of the country and part of these farms could be enumerated in considerable detail.

A five percent sample would be about 340,000 farms. In view of the need of coverage and speed I suggest that about half of this number, say 170,000 farms be enumerated in November, using printed books like those used by assessors, with one line for each farm.

I suggest that about 120,000 farms be enumerated in December, before the tenants move, using a blank similar to the farm schedules used by the Census Bureau, but designed to permit more accurate checking. Then the remaining 50,000 farms, or possibly a larger number, could be enumerated, starting January 1, using much more detailed schedules, similar to those used in securing farm management records. If payments per farm are 25¢ for the book records, 50¢ for the Census type schedule and $1.50 for the detailed records the total enumeration cost for these numbers would be about $180,000 per year.

I suggest further that the essential item of these detailed records be gang-punched in triplicate on machine tabulation cards, one set being retained by the Department of Agriculture in Washington, one by the Farm Credit Administration and one by the College of Agriculture in the state concerned.

I suggest also that the totals for each area be released in mimeograph form and that totals for all areas combined be released by states and for the United States, with comparisons.

Results to Be Expected

Look then at what we would have. The Division of Crop and Livestock Estimates would have annual records of farm lands, main crops, acreages, and numbers of livestock on 300,000 farms and we could get half of these summarized in time for our December and January estimates. We would have annual records of crop yields, production of livestock products, etc., on 170,000 farms, and we would have further details, of utilization, inventories, prices, etc., on 50,000 farms. These records would cover practically identical areas. They would show the areas of farms coming into production and of farms going out.

The Division of Farm Population of our Bureau could have records of total people on 300,000 farms and more detailed records of population movements on perhaps 50,000 farms.

The Division of Farm Management and Costs would have annual inventories and continuing income records for 50,000 individual farms representing all major type-of-farming areas in the United States. They could also secure annual records of unit costs and practices on some individual farms, and estimates for most of the areas.

The State and National agencies promoting soil conservation would have records which would serve to measure the financial and fertility results being secured from the programs and they

would have data from which they could calculate which conservation measures could best be pushed in each state.

If crop insurance is to be put into effect, the records taken could be made invaluable for determining average losses from various causes as distinct from the losses reported on insured farms.

The Farm Credit Administration would have at their finger tips continuing records of land values and of returns from all kinds and sizes of farms on all kinds of soil and in all typical farming areas. They would not only be able to put their appraisals on a more scientific basis but they would know where leniency in collections might be justified and where not.

The farm management and farm economic offices of the state colleges of agriculture would have records showing for individual farms and farming areas a series of continuous records of farm incomes and profits.

This system of records would also improve the results of the census enumerations. Some of the census schedules have been overburdened with questions that should never have been asked. Some of the questions have been experimental. Some items of real importance have been omitted. Annual surveys, properly handled, could relieve the Census Bureau of some of this experimental work and might permit some shortening of the decennial census schedules. Where the census date of enumeration is changed the annual surveys would help to show livestock numbers on comparable dates. Where there is a change in the rate of payment, changes in questions, instructions or definitions or other disturbing factors the sample surveys would help to provide comparable figures.

And then we have the vast army of people using local, state and national statistics for thousands of different purposes. The number includes those working on economic, social and legislative problems, people wishing to buy or sell, and people who want to draw their own conclusions from the facts as reported by the farmers rather than accept the estimates of someone else. The diverse needs of most of these people could be met by the prompt publication of the results of the surveys, supplemented by the detailed calculations and subsorts made by cooperating groups.

Kind of Areas to Select

The needs of these various groups who would use the results of the surveys should determine the size and character of the

areas selected for enumeration. Just as those of us who are estimating crops want coverage and speed, and those working on farm management problems want detail and accuracy, so in the selection of samples there are bound to be differences of opinion. Those who are interested chiefly in national totals and in changes between census years place the emphasis on comparability and tend to favor the enumeration of whole counties with a preference for individual counties which are representative of conditions in their respective states. Farm management workers tend to favor the selection of more uniform areas each typical of some important type-of-farming area. Those working on county planning projects tend to emphasize the importance of representative samples and favor the enumeration of many small areas scattered through the various counties.

In general, the larger the sample areas that are selected the less the comparisons over a long period of years would lack comparability because of changes in the boundaries of the farms. The larger the areas the simpler would be the problem of publishing the results, and the oftener the totals for individual areas would include such a proper assortment of large and small farms, owned and tenant farms, etc., that they could be accepted as representing conditions in the surrounding type-of-farming area. If whole counties, townships or groups of townships should be selected it would facilitate comparison with successive census reports.

On the other hand, the larger the individual area selected the smaller would be the number of areas that could be enumerated, the less representative they would be as a group, and the more they would be affected by purely local conditions such as the failure of the irrigation water supply, a local shower in time of drought or the growth of a local industry.

From a purely sampling standpoint the selection of numerous small areas appears to have many advantages, for one could select small groups of farms on practically all soil types, and in all types of farming areas. In practice, however, the selection of very small areas would cause many complications in enumerations, tabulation and publication. If the average of the samples showed higher yields, or higher land values or higher something else than the census some people would say it was because of better enumeration and some others would say it was just because the sample areas were picked in the best farming sections. This doubt regarding the representativeness of the sample would seriously reduce its value. But the biggest difficulty in using the

records for small areas would be the complications arising from changes in the boundaries of those farms which lie partly within and partly outside of the areas selected.

Changes in Farm Boundaries

Most men, when they start farming, start on a small scale. As they gain in skill, and accumulate capital and as their children become old enough to help, they purchase or rent more land. Later, as their children move away and strength begins to fail, they tend to operate a smaller area. This means that each year about 5 or 10 percent of the farms change in size, and from one census year to the next probably a fourth or more of the farms change in size. The number of farms is also changing, so that in measuring changes from one census to the next all our calculations based on the changes on individual farms tend to be misleading. For this reason, to measure changes in the use of land it will probably be necessary to secure successive records for practically identical areas of land. However, for some other items a different procedure may be necessary, because in measuring farm incomes or numbers of livestock, for example, it is necessary to take a farm as a whole.

These complications are so troublesome that to maintain fair comparability and to reduce the bookkeeping difficulties in handling of border-line farms, it would seem best to select as sample areas compact blocks of fair size.

In a newly established rectangular township six miles square and laid off in sections one mile square with 4 farms per section, there would be 144 farms of 160 acres each. Some 44 of these farms or nearly one-third would be on the outer tier. Forty would have the township line along one border and the four in the corners would have the township line on two sides.

In most of the older portions of the country we must expect perhaps a third of these border-line farms to stretch across the township line, and I would guess, if we enumerate only solid townships averaging 20,000 acres of farm land, we would have to be satisfied if, on the average, we found no more than a thousand acres of the land within the township to be operated from buildings outside of the township and no more than a thousand acres outside to be operated from buildings within the township.

Putting this another way, if we enumerate samples of about 150 farms each probably 92 percent of the annual changes in the boundaries of individual farms enumerated would be offset by changes on adjoining farms within the area, leaving 8 percent

to be allowed for separately. This percentage would be doubled if we enumerate areas containing only one-fourth as many farms.

A Suggested Program

To secure the advantages of having widely distributed samples and at the same time have at least part of the surveys cover practically identical areas each year, I suggest that in selecting areas we pick some solid townships or other political units used by the Bureau of the Census or groups of such units, giving preference to areas containing from 100 to 150 farms. I favor selecting units each of which is reasonably representative of some farming region, but which, taken together, are reasonably representative of the States and of the Nation.

I feel sure that such enumerations could be gradually adjusted to supply greatly improved statistics on practically all of our more important agricultural problems, both those that are pressing us now and those that are to come, until we reach the point where some annual estimates are needed by counties. To meet a need for county estimates this program could be modified by extending the surveys in two directions; first, to take in such additional small blocks of land as may be needed to secure adequate county samples, and, second, to make a complete enumeration of all of the very large farms, plantations and ranches.

Many of you may differ with me on parts of this program but I hope all of you will recognize the advantages of pooling our statistical needs and working together to develop this new source of information.

H. H. Schutz[1]
Bureau of Agricultural Economics

II. TESTS OF VARIOUS SAMPLING METHODS

Among the problems to be solved before starting a sample census is the determination of the best method of selecting the sample areas, and the size and nature of the unit to employ. If data on a state basis are desired, the county or township unit might well serve the purpose, but if annual changes in the 3,000-odd counties are the desideratum, smaller units such as well selected blocks of farms would probably give better results than the larger township units.

The time of the enumeration is also of fundamental importance. In order that the enumerators may obtain reliable data on the

[1] An abstract of a paper read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936, in Joint Session with the American Statistical Association.

year's operations from persons familiar with what has transpired, the survey should be made some time in November or December, particularly in those sections where tenants move in January.

There are suggested two practical methods of conducting a sample farm census, one of which might give satisfactory results. The first would entail the selection of a block of farms in each of several type-of-farming areas of every county within a state, and the successive enumeration of the identical areas from year to year. The other would involve the random selection of farms within a county, or type-of-farming sub-area within a county, and the enumeration of these farms every year.

The second plan has a decided disadvantage in that it does not provide for a measure of the increase or decrease of farm lands in the county. Furthermore, the description of the farms would be more difficult; more time and travel would be necessary in their enumeration; and it would be more troublesome to avoid boundary difficulties.

An approach to the first method was tried in two counties by Mr. L. M. Carl, Iowa Agricultural Statistician. Although the samples included only 7.1 percent of the farm acreage in Hamilton County and 8.6 percent in Humboldt County, the results were sufficiently encouraging to lead to the conclusion that had larger samples been employed and type-of-farming areas substituted for soil types as a basis for the selection of the samples, the shift in acreage and production in the two years would have had practically the same relationship as the entire county.

In cooperation with the Department of Economics and Sociology of Kansas State College, Mr. H. L. Collins, Agricultural Statistician, is making a study similar to the one in Iowa but is taking sample farms from selected type-of-farming areas. And, instead of blocks one mile wide, all farms fronting upon the chosen roads will be included in the sample. In Alabama, in 1936, the regular sample farm survey was modified in some counties to include a tier of farms on each side of roads selected in distinct type-of-farming areas within the counties.

It is believed by some investigators that a certain number of townships might be chosen in a county to serve as a miniature of the whole. Tests of the annual changes in selected townships were made with Kansas assessors' survey data and with data from the Alabama Federal Census, but the results were not satisfactory. Some of the lack of agreement may have been due to enumeration differences.

To ascertain whether stratification of the counties of a state might add to the accuracy of a purposively selected sample, a single county from each Crop Reporting district of several states was selected. The criterion used for the selection of the county to represent each district was the number of horses and mules per 1,000 acres of farm land. In the case of Alabama, using 1934 Census data for the selection of the sample, and stratifying by Crop Reporting districts, 18 out of 20 items of the sample corresponded within a limit of 5 percent, in 1929 to 1934 changes, with those of the state. In New York, 17 out of 20 items checked. The use of 1929 data for the selection of the sample gave poorer results in that only 13 items checked with the state changes. Similar tests were made of Census data in several other states, but in no instance were the results quite so uniformly close as in Alabama.

Census data of Kansas and Iowa were employed for making comparisons between stratification by Crop Reporting districts and by type-of-farming areas. A county selected from each of the nine Crop Reporting districts in Kansas gave the same general results as did the sample from 15 type-of-farming areas. In Iowa, a sample of two counties each from the five principal type-of-farming areas gave the best results.

Many other tests were made in an effort to determine the best methods for the selection of samples and to explain the underlying difficulties, but lack of space does not permit their discussion here.

It is concluded that certain *a priori* methods of selecting sample census areas have been tested but none of these methods has been found to be satisfactory in all respects. Additional research and experimentation are needed before definite methods of taking a sample census can be agreed upon.

There are two general methods that might be followed in setting up a plan for taking an annual sample census of American agriculture. Both methods include a stratification of the universe to be sampled (county, type-of-farming area, or state) into as homogeneous areas as possible on the basis of available data from the Census or other sources of information. If county estimates are to be made, the county should be stratified into type-of-farming areas wherever possible. One method of selection would involve the application of the principles of simple sampling, whereby each farming unit or block of farms would have equal opportunity of being included within the sample. The other method, known as purposive selection, involves the use of judgment

and criteria, or statistical controls, in selecting the farms or blocks of farms for inclusion in the sample. Furthermore, there is the problem of whether identical sampling units, either individual farms or blocks of farms, should be selected anew each year or whether a sample once selected should be carried along from year to year as an identical sample. Theoretically, the advantages appear to lie with the second alternative of a continuing sample over a period of years—at least from one Census to the next.

Annual enumeration of one percent (approximately 68,000 farms) of the agricultural townships of the United States would probably provide fairly serviceable indications of national tendencies towards more or less intensive cultivation, movements of farm population, changes in land values, etc. Such enumerations would also serve to relieve the Census of experimental questions, would permit annual interpolations between census totals and would be helpful where the census date of enumeration is changed.

The annual enumeration of 5 to 10 percent of the farms including an adequate number of solid townships supplemented by smaller blocks of farms, with some of the farms enumerated in detail, would be very helpful in broadening the field of agricultural statistics, improving the accuracy of the state and national estimates and providing the Agricultural Adjustment and Farm Credit Administrations and other agencies with some of the basic check data that they need.

To permit the preparation of county estimates of crops and livestock that would be reliable enough for prospective requirements, the enumeration would probably have to be extended to include fully 15 percent of the farms, and careful preliminary study would be necessary in the selection of the sampling units to be enumerated.

Discussion by Z. R. Pettet

Bureau of the Census

A clarification of the purposes of a sample census is needed before it is possible to place a value upon the suggestions offered on the method used, the size of sample, the degree of accuracy required or the practicability from standpoint of cost of administration. Mr. Shepard's paper makes a strong case for the general desirability of additional farm statistics.

If the primary purpose is to supplement crop estimates' figures for states or districts between regular census periods there is no question of its feasibility. If it is designed to get special information for other agencies, for home economics, farm management, farm credit, vital statistics, and simi-

lar information, of course it will be of use. If, however, it is designed to provide accurate county statistics, which in turn shall be a guide to state changes, then it is a very difficult problem and the method used and the size of sample will be very different. If for county statistics a 15 percent sample is necessary, as Mr. Schutz states, and if prepared for all counties the cost would probably be prohibitive.

In checking over the extremely interesting tables presented by Mr. Schutz, one thing becomes quickly apparent—that samples carefully chosen in fairly homogeneous territory may be quite representative of the state at that time; also, if the change from year to year is a state-wide trend, that the sample will also show the movement. If, on the other hand, in different parts of the state the sample counties react differently to price and other changes, it appears that the relationship would be entirely upset; for example, if the price of peanuts (or hogs) were high in southern Alabama, cotton being static, the change in the southern, or peanut counties would upset the relationship, particularly if the peanut area was not represented in these samples in the exact necessary proportion to the state. As there is a wide range of crops, this would be applicable to many situations.

This brings us to the conclusion which we should have reached much earlier in our explorations; that there is nothing new in the sample census idea; that the samples taken for many years by the U. S. Department of Agriculture estimating the field crops, and that the frontage meter records are nothing more or less than samples, usually selected samples, which in themselves contain most of the material necessary from which conclusions can be drawn. The conclusions that will be derived from a sample census should be very similar; for example, Mr. Schutz's study shows that changes in the major crops and those which have no serious enumeration or estimating peculiarities are representative and can be quite easily charted, but that the minor crops do not appear in sufficient quantity in a sample to be adequately estimated or measured. Just as the statisticians of Crop and Livestock Division found it necessary to get truck crops by the old "foot and mouth" method, that is, go out and run down the various truck crops by interviewing the railroad men, producers, market agencies, cooperatives, etc., so it will be necessary after taking the sample census to pick up this other minor information in a similar fashion.

From a mathematical standpoint this difficulty may possibly be brought out from an attempt to compute a coefficient of dispersion. For example, there were some 250 questions on the standard census schedule of 1930, not counting the supplements. These represented agricultural operations on all sizes of farms and ranches running from zero (where sheep and cattle were run on open range) to several hundred thousand acres; tenures for 12 classes; in type of farms, 12 major classes; with weather conditions ranging from such that some crops were absolutely destroyed, to most favorable conditions of temperature and rainfall. In some cases the extremes could be found in the same county.

The method of comparing the replies of identical farms, or so-called direct comparison frontage meter readings, should be applied to sample census returns. This means that we should have a sample census for identical areas comparable year by year with previous records if we are to get the most out of the figures. We are further of the opinion that this fixed

area should be made directly comparable with the fixed areas determined by the census, i.e., minor civil divisions. To advance this purpose the Census went to the additional expense of tabulating all items by minor civil divisions. These are now available for practically all states. Only from direct comparison do we believe that the Bureau of the Census and the U. S. Department of Agriculture would obtain the maximum beneficial results from a sample census and it is partly for this reason that the bureau has agreed to the idea of a sample census and has been aiding so far as possible in its promotion.

It is generally believed that the Census Bureau must continue as the principal source of basic statistics. The Bureau of the Census has hoped that any project of this kind would offer the Census an opportunity for training a nucleus of supervisors and enumerators, for experimenting with the schedule, testing out the questions of the schedule, determining bias, and for locating difficulties and harmonizing statistics of the U. S. Department of Agriculture with the Census. Such a plan was contemplated in the proposed Buchanan Bill HR 7805, but does not appear in Mr. Shepard's paper; for example, no mention has been made of the tabulation of the schedules and punching of the cards by the Census Bureau, which this bill contemplates as our part of the work. This sort of work would enable the census to maintain a permanent technical staff and a clerical organization which would form the nucleus of the Census Agricultural Division. This would be very desirable when the decennial census is taken. Without such cooperation as that proposed the value of the sample census to all users as well as to the Census Bureau would be very greatly decreased. We believe the very closest cooperation will be necessary, or perhaps a joint project would be better than that now outlined. Indeed if two sets of apparently conflicting figures should be issued, due to different methods of handling certain crop data, the results to the public might be an actual loss.

WHAT TYPE OF FARM MANAGEMENT, INDIVIDUAL, PROFESSIONAL, OR INSTITUTIONAL?[1]

D. W. TRICK
BANKERS LIFE COMPANY

The highly dramatic subject of Farm Management deserves a prologue by way of introduction.

Two adjoining corn belt farms one owned by Mr. Hardup, the other by Mr. Dunwell. The crops on the Hardup farm disclose that the owner is a miner, not a farmer. All fertility has been excavated from an inherently good soil type. Neglect stares us in the face in the form of sagging gates, tumble-down fences, unpainted buildings, and a squeaky windmill. Empty grain bins and feed lots indicate profitless operations. At 11:00 o'clock in the morning, Mr. Hardup acknowledges our greetings with indifference. Then, he rouses to a plaintive harangue covering numerous grievances. His wife and children, huddled in the background, must be leading a drab existence. We leave saddened.

The Dunwell farm across the road with its trim fences and attractive homestead of neatly painted buildings, beckons to us. A neat and cheerful housewife answers our rap. We walk a good half-mile to the south forty and find Mr. Dunwell who accompanies us back to the buildings. He exhibits well-bred stock and well-filled granaries. Our visit to the Dunwell farm was a pleasant experience, one we will remember for a long time.

We note the vivid contrast between these two farm settings and end our prologue. The prologue warns us of the problems we must deal with, for there are thousands of comparable situations throughout the land. Obviously, the Dunwell farm is well managed and is running smoothly and efficiently. It gives testimony of profitable operations and a high standard of living for the family. Equally plain are the substandard conditions on the Hardup place, for here the evidence bespeaks financial losses and discontent. The Hardup and the Dunwell farms with their widely different characteristics furnish a striking contrast. It does not take an expert to discern that the seat of the trouble on the one is mismanagement, or lack of management, and that favorable conditions on the other are due largely to superior management.

Mortgage men had been making loans on farms for years, but frequently they overlooked that farming involved such important elements as soils, rainfall, good and bad tillage, earnings, and

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 28, 1936.

so on. All during the "golden agrarian age" before the World War and even into the early twenties, making farm loans was a placid business. No one dared question the soundness of the farm mortgage as an investment. Past performance had taught corporations they could loan money on the theory of the permanence of relatively high prices for farm commodities and farm lands, and that unearned increment would act as an additional safeguard. Land prices might remain stationary for short intervals, but the main trend was upward—that was enough.

Then something happened. The biggest depression we ever hope to meet swooped down on us. It disarranged papers in the portfolios of investors. It blew away some farm mortgages and carried in some sheriff's deeds. After the storm subsided we discovered that the outcome was not nearly as bad as the predictions. The majority of our farm mortgages had survived, but even so, we had a sizeable group of properties on our hands demanding temporary shelter, forcing us as investors to study carefully the various types of farm management.

Individual

First, let us examine the individual farmer and his practices. World history tells us he has been growing crops for at least fifty centuries. He should have a fairly good system developed after working at it for five thousand years. Suppose we go back only 75 years to the Homestead Act of 1862 as it seems to be the basis for the land policy we had in this country until recently, and it is charged with being responsible for exploitive farm management practices. Probably there was little incentive for the pioneer farmer to follow soil conserving methods as long as cheap virgin acres beckoned on the westward horizon.

It is easy to demonstrate that American agriculture has contributed heavily to our national welfare. Traditionally the family farm spelled security from revolution, communism, fascism, and sovietism. On the economic side it was the main bulwark of the nation's prosperity. On first thought, those years of prosperity and social contentment would apparently denote high-grade management, although some critics claim that dividends during those years were paid out of capital account. They hint at questionable farm management practices. We must bear in mind that the family farm is a peculiar combination of home and business. We are prompted to inquire if the home influence has helped or hindered progressive management. Should farming be strictly a business, or a mode of life? A solution of that problem might

assist us in developing farm management practices to fit the situation.

Whenever the question "What is agriculture's greatest need?" is hurled into the midst of any group, it stirs up lively debate. We might agree, however, that close to the head of the list in importance, comes the outstanding need for "Better Farm Practices," better individual practices, or in plain words—better farm management by the individual. It has been said that "A farmer is the only man in the world who can lose money year after year and still stay in business." Seemingly, that would require management ability of the highest order, but the soil conservationists tell us that some of the profits drawn from the soil during the golden era were taken at the expense of future generations. In the life insurance business we call that "borrowing from your own widow." We are told that bad practices have left a substantial heritage of eroded and devalued acres; that many farmers ambitious to expand their holdings failed to manage their finances wisely; that they overextended, tied up too much of their capital in land, and neglected to keep enough money in liquid form to provide adequate cash reserves when needed. It was not necessarily a case of insufficient capital, just an unwise distribution of assets. It is said, too, that a heavy debt burden breeds very bad farm management practices. To what extent these charges are true is another question we are not obliged to settle today. It is plain to be seen, however, if they are partly true that better individual farm management practices are corrective measures which might improve conditions.

Large Scale Farming

Leaving the family farm we might glance a moment at the so-called large scale farming projects. Do not confuse large-scale farming operations with institutional farming, which we will discuss later. It is true that many large scale farms are owned by corporations but very often they are held by individuals or families. History furnishes many notable examples of large-scale farming, most of which, we are told, disintegrated in due time to make way for the onward march of the family farmer seeking a home and means of livelihood. Why did they fall apart? Was it due to faulty management, or an unsound economic premise, or was it through the demands of changing social orders? If caused by the latter, is it possible that a reverse social tide might sweep back again and create a trend toward the consolidation of small

farm units into large properties. Again we ponder over the question, "Is farming a business enterprise or, is it a way of life as exemplified by the family farm?"

Undoubtedly mechanization, gains in management, and other advantages, all facilitate large scale operations. Loyal supporters, however, of the family farm claim that even though large scale farmers may pave the way in scientific methods that the family farmer can adopt these methods, and that during hard times he can work longer hours and effect economies not adaptable to large scale operations.

A friend and I spent a day on one of the largest plantations in the Delta, this fall, and saw there a huge enterprise. It was basically a farm plant, but it carried a factory superstructure. We could not help but speculate what it might portend. Raw commodities such as cotton, soybeans, alfalfa, and even corn were grown on a large scale, but more than that the plantation had its own gins, compressors, mills, and so on. We were keenly interested in the extent to which raw commodities were being processed right there on the plantation. We decided to call this special brand of farm management, "vertical diversification." We wondered if, somehow, it might be fitted into the new scheme of a slowly changing agricultural order, which some authorities tell us is now under way. We tried to figure out if this sort of thing could be transplanted to different types of farming in other regions. Could many of the raw commodities, in some form or other, be carried farther in the processing stage, before leaving the farm, thereby expanding market outlets and shortening the route between producer and consumer? If so, would it mean a trend toward large-scale farming, or what size farm would be required for these complex methods of production? How would it affect the lives and the living of the workers? Certainly we do not want to displace our fine type family farmer to make room for peasant farmers or factory hands, and yet many family farmers have been faced with difficulties, not only during the recent acute depression but for 16 or 17 years past. What does it all mean? Does the future of large scale farming furnish worthwhile conjecture? Would it be conducive to improved farm management methods?

Professional

Let us now consider the professional type of farm management for it is quite possible that an expansion of large-scale operations might give rise to an enlarged demand for the professional type

of farm management. I asked a friend of mine the other day to define professional farming and he claimed it could not be done. The American Society of Farm Managers and Rural Appraisers defines professional farm management as follows: "A professional farm manager is one who manages the farms of more than one owner on a fee basis."

Today nearly half the farms in the country are owned by nonresident landlords, including retired farmers, butchers, bakers, lawyers, doctors, banks, insurance companies, milliners, widows, and "gentlemen farmers." Let us examine the farm management qualifications of this assortment of owners. When the farmer breaks his leg he sends for a doctor, when he wants to make a will he goes to his lawyer, he calls on his banker for financial advice, and his wife goes to the milliner for her new hat. But, what happens when any one of the above named acquire a farm. The doctor, every rainy Sunday, when he cannot play golf (this happens three or four times a year) devotes his spare time to managing the farm. The lawyer, too, has a good grasp on managing farms, for he has been dictating the fine print in farm leases for twenty-odd years. The banker doesn't pretend to know much about supervising farms, but he has a bright young chap in the trust department who is not very busy—just the man to look after these odd jobs. The milliner has a brother-in-law in the grocery business, a big aggressive fellow who knows how to squelch belligerent tenants. What a travesty on the presumably dignified profession of farm management. Seemingly, the professional farm manager is in a position to fill a gap of long standing in farm management needs.

In addition to farm management work, there are other services which can be rendered by the professional farm manager. Farm mortage investors and other business enterprises closely allied to the farming industry, are slowly awakening to the need for certain types of service that their own organizations are not prepared to furnish, but which can be supplied by the professional farm manager in better quality and at lower cost.

Institutional

Next let us consider the institutional type of farm management. It is difficult to understand how any one could confuse the professional farmer with the institutional farmer but occasionally it does happen. The professional farm manager should stand for what his title implies, and presumably he is a past master, where-

as the institutional farmer falls in the undergraduate class. The institutional farmer is a transient. Take the life insurance companies, for example, quite a number of these institutions with farm mortgage holdings reluctantly turned farmer on a temporary basis, because of the depression. They did not want these farms. The companies were chartered to sell life insurance, not to speculate in lands or produce food. Picture then the bewildered state of mind of the poor institutional farmer saddled with a new and unfamiliar task.

Cognizant that his ownership of farms was not permanent, he realized, nevertheless, that it was no time to force farms onto a stagnant real estate market. He knew he must bide his time before commencing sales activities. He understood this meant he would have to manage and operate farms for an indeterminate period.

And so many of these farms had one common characteristic, in that they were frequently run down; for in the struggle to survive, many of the former owners had been unable to give land and buildings proper maintenance. The institutional owner promptly decided that it was not his function to embark on large-scale farming operations, on the contrary his duty, as he saw it, was restricted to preserving the family farm units over which he had been elected to exercise temporary custodianship. Fiduciary institutions inherited a dual responsibility, one to farmers, and the other to the policyholders who own these farms.

The institutional farmer had two big tasks ahead of him. First, he had to learn the fundamental principles of farming from the ground up. Second, he had to devise a management system for handling under one control, a large number of widely scattered family farms. Here was a new problem for which there was no precedent, nor any pattern to follow. Agricultural colleges had never been called on to furnish men specially trained for a job of this nature, where a single owner was responsible for the management of a large flock of family farms. It took time and ingenuity to work out a plan, which involved a system for grading, classifying, and inventorying, a huge stock of farms in order to intelligently deal with the broader phases exclusively applicable to institutional farming.

There are, of course, the same underlying principles of good farming which must be observed in institutional management the same as in any other type. Two distinguishing features are the centralized ownership of a large number of family farm units, and the fact that the period of ownership is temporary, not permanent. Even so, there is less dissimilarity between institutional

methods and other types of management than might be expected. The fieldman in charge of actual operations handles each separate unit much the same as he would if he had one farm instead of fifty or more under his supervision. Variations in the system increase as we recede from the field force at the front line. The manager, at the head of all farming operations, has his own special problems, too numerous to mention here. One of his chief duties is keeping the entire field staff functioning efficiently. He agrees with President Farrell at Kansas State College, who said:

> "To make a living, foul or fair,
> One cannot farm from a swivel chair."

Behind the farm manager are excutives and Boards of Directors determining broad general policies. The world will never know how much midnight oil was burned by members of the institutional staff during the elementary stages of their farming education, but it may be safe to predict that the day will arrive when officials are willing to admit that it was an enriching and purifying experience. From a practical angle it is going to be useful too. It kindled their interest in the broad problems of agriculture. It has taught them to weigh the merits and demerits of proposed farm remedies, and last but not least, it should enable the mortgage investor to detect the weak spots in a farm loan more readily.

Fabricating the institutional system of farm management has been an intensely interesting job. At times we even developed a glow of enthusiasm. Of course, institutional farming has its drawbacks but it has its advantages too. In contrast to the individual farmer who has to steer his ship alone we have the advantage of group opinion. Was it Macaulay who said, "Men are never so likely to settle a question rightly, as when they discuss it freely." Free speech prevails on institutional staffs and the privilege is exercised by each and every member.

Usually the institutional farmer has both the inclination and the resources to inaugurate needed rehabilitation and carry out proper crop rotations. Immediate cash returns are not so vital and he can afford to wait for crop rotation programs to materialize. Mass handling of marketing, purchasing, repairing, and so on, is another oft-mentioned asset in institutional farming, but we believe that this feature frequently is over-rated. Probably it is more of an item in large-scale farming. To a limited extent we handle some features under the mass approach, but we try to guard against overdoing it. The best and most economical method

is our goal. Costs are a pregnant subject in any business and we urge our men to remember that they carry sharp pencils for the *express* purpose of figuring costs, not to fill pages and pages of order books for mere adornments to the farm.

We must not leave the institutional farmer without a word or two concerning his "soul." From time immemorial, corporations were accused of being soulless creatures. True, the corporate entity is an earthly body and has no soul, neither do legislative bodies, government bureaus, college staffs, or farm organizations, have "souls." But the men who make up all these various organizations have souls, some of them very humane souls. I have observed that even some institutional farmers have souls, and are anxious to deal justly and fairly with their fellow men. Take their dealings with tenants, for example. All of our fieldmen report there is heavier demand for our farms than for farms owned by individual landlords. What this may signify we leave for others to judge. Maybe tenants prefer to rent from a landlord who has the resources and is willing to fix the place up and furnish clover seed, and do everything in his power to make it possible for both to make money. Possibly, the tenant prefers a one-year lease on the institutional farm rather than a five-year lease on the Jones place across the road.

We like to think that when the books are closed institutional management will have served a broader purpose than merely "loose-herding" a few stray family farms before they were returned to the home range. There has been a growing desire on the part of institutional farmers to bequeath worthwhile contributions to American agriculture. They inherited a grave responsibility. They have tried to administer the trust, sanely and wisely.

Conclusion

For a long time I was worried over that little conjunction "or" which appears in today's topic. I thought it meant that we must select a preferred brand from among the three types of farm management, whereas under our present agricultural economy each type seemed to be indispensable. On what the future holds in store, your guess is better than mine but can we not say that future management methods will more or less automatically adapt themselves to the future scheme of American agriculture.

Lord Bryce expressed an opinion once that the American West had grown too fast. We might say now that the individual or family farmer has passed through his "Terrible Teens" and

conceivably he came of age about 1920. Some measure of his success was attained through deprivation. Often, he stinted on home comforts that the business end might flourish. Could the time come when stinting would entail too great a sacrifice? If it does, what will happen to the family farmer? If, on the other hand, "Life Begins At Forty," then presumably the family farmer has a career ahead of him and individual farm management would be the dominant type.

The outlook for the professional farmer disclosed opportunities for enlargement of this of management. It showed clearly that absentee landlords might profit by taking advantage of professional farm counsel.

Institutional farming adds up in this fashion. It was born of economic distress. Institutional owners had no choice in the matter, neither could they select their properties. They had to take them "orchard run." The ownership is involuntary and temporary. Unless unforeseen circumstances arise the institutional type of farm management, as we know it today, stands a good chance to fade out of the picture in a few years and, the institutional farmer is looking forward to the day when he can reengage in the mortgage loan business, exclusively.

Can we not agree that a choice between the various types of farm management—individual, professional, or institutional, is far less important than recognition of the fact that under present day conditions, different farming regions, and variations in ownership necessitate different types of farm management, then are we not safe in recommending that each and every farmer try to improve his own private strain of farm management—starting with any good reputable brand, best adapted to his own particular needs? Can we venture so far as to say that, "Good farm management is the mainspring of modern agriculture?"

FARM POWER PROBLEMS[1]

MULE vs. TRACTOR POWER ON PLANTATIONS

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The importance or significance of power as a cost item in Delta plantation operation is often overlooked, or at least under emphasized, because many of the power costs are indirect. Especially is this true of mule power on plantations where most of the feed for mules is grown.

The average power costs in cotton production as shown by about 25 records in 1932, 1933 and 1934 were approximately $6.00 per crop acre.

The power and labor problems are very closely related. In the last analysis, not only power and labor must be considered, but also other resources, because, after all, the planter is interested in the greatest net income over a period of years; and not merely the reduction of one type of cost unless it helps to accomplish this objective.

History of Power Units in the Delta

The Mule. Since the early development of the Delta, the mule has been its chief power unit.

The Delta is a specialized cotton producing area. Previous to Government programs, 75 to 80 percent of its crop land was in cotton each year. A large percentage of the cotton and corn is grown by tenant laborers. Most planters have considered the mule a better power unit than the tractor for tenant farming.

The Tractor. Prior to the introduction of the cultivating tractor (about 1925), there were very few tractors in the Delta. Tractors prior to 1925 were used entirely for land preparation, ditching, and belt work. Since 1925, an increasing number of planters have used their tractors for cultivating also. Nevertheless, the greatest use of tractors is still seed-bed preparation, ditching, and belt work. However, within the last seven or eight years some planters have mechanized to the extent that all operations except hoe work and cotton and corn harvesting are performed by tractors.

The following census figures show that there has been a change

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by J. B. Davidson.

in the number of Delta power units. Tractor numbers in eleven Mississippi Delta Counties have increased from 378 in 1925 to 1582 in 1930. The number of tractors per 1000 acres of crop land was .23, and .80, in 1925 and 1930 respectively. The number of mules and hores per 1000 acres of crop land was 54.3, 52.5, and 51.2 in 1925, 1930, and 1935 respectively.

This, to some extent, shows the planter's answer to the question of mules vs. tractor power on plantations.

Considerations in Choosing Farm Power Units

In choosing a power unit or units, the planter should consider the following:

1. Which power unit is best adapted to do the work to be done?
2. What is the initial cost of each unit with necessary accompanying machinery?
3. Which power unit will result in the lowest average cost per unit of work over the life of the unit?
4. Will other costs be raised or lowered due to the power units in question?
5. Will crop yields be any different for different units?
6. Summarizing the above, which power unit will be conducive to the greatest net income, everything considered?

The comparison of power units, in the last analysis, should be made from an individual standpoint, after considering the above, and perhaps other questions.

If these and perhaps other factors are considered by planters, in selecting their power units, their consideration should be a logical approach in comparing mule and tractor power.

In considering the adaptability of unit to needs, the superiority of mule or tractor power depends upon the job to be done, and surrounding conditions; therefore, it becomes an individual problem. If the work performed in special cases is valuable enough, and can be done with only one type of power, other considerations would have little weight; however, it should be considered whether this special work could be contracted cheaper than it could be done with owned equipment. In other words, the choice would then be between owning and hiring the power rather than between purchasable power units.

Fundamentally and economically, the initial cost of the power unit and implements pulled by it, is important only to the extent that it affects average operating costs over the life of the power unit.

The cost of replacing or supplementing implements because of the purchase of a new power unit is dependent upon the imple-

ments on hand. For example, a planter may need several mules, and yet not have to buy any implements at the time; whereas, if a tractor is purchased, implements to accompany it, will also have to be purchased. This is often a major consideration. However, this appears to be somewhat short-sighted, and the implements that will have to be bought during the life of the unit should be considered.

Which power unit will result in the lowest average cost per unit of work for its entire life? is the question in which most people are interested, and is perhaps one of the most important. The mechanical power unit's use in the Delta is so recent, and improvements in the power unit, and more especially the implements pulled by it have been so rapid, that it is difficult to secure actual figures representing plantation conditions. Tests have been made, and plantation records are available which reveal the gasoline and oil consumption, but very few actual data showing depreciation and repairs during the life of tractors under Delta conditions are available.

The mule costs are figured in two different ways with respect to feed costs. In Method A, the entire yearly feed costs were included as a fixed charge and distributed to the hours worked. In Method B, the feed cost is estimated to be one-third more per work day than per idle day. All other items were considered to be the same.

Tractor costs were figured in three different ways because depreciation was figured by three methods. All other items remained the same. In Method A, depreciation was figured on use only and on the assumption of 10,000 hours of use during the life of the tractor.

The straight line method of figuring depreciation was used in Method B, assuming 10-year life. The depreciation for Method C represents a combination of use and obsolescence. The "trade-in" value of the average five-year-old tractor, which had been operated (roughly) 4000 hours (5 years; 800 hours per year) is approximately $300, therefore, the total depreciation is $800 for five years. On the basis of use at 11 cents per hour the total depreciation due to use would have been $440. The difference ($360) between the total depreciation and the amount figured for use is here called obsolescence.

These various methods are not presented to advocate any method, but to show their effect upon hourly operating costs.

The fixed mule costs are 75.8 and 71.3 percent of the total mule costs for Method A and Method B, respectively. The fixed tractor

costs are 5.8, 24.0, and 16.3 percent of the total tractor costs for Method A, B, and C, respectively.

This table shows that hours of use per year is the most important factor in determining the cost per hour of mule work. This is because a large percentage of mule costs are fixed costs. There is very little difference in the cost per hour with Method A and Method B.

Hours used annually is also an important factor in determining the per hour cost of tractor power but is much less important than with mule power.

Considering all operations, a tractor designed to pull a four-row cultivator is usually considered equivalent to eight mules.

The comparison in Table 4 shows that tractor costs are less than mule costs. From a cost standpoint, the tractor has a relatively greater advantage over mules with smaller number hours of use per year than with larger number hours of use. Therefore, as a source of reserve power the tractor is a more economical power unit than mules. This is quite a consideration in the Delta, because there are long periods of idleness, and periods of rush work.

The operating cost of implements pulled by tractors and mules should be considered along with their respective power unit, but due to the lack of data on their repair and depreciation costs, they were not included. However, it is very doubtful if their cost differences would significantly change the relationship presented.

There are limitations in the cost comparison since some of the costs included may not be actual costs. For example, on small farms the farmer or his sons may feed the mules and this time would have little or no value otherwise. However, on plantations a man (hostler) is hired to attend to the mules and the feeding cost is a definite cash cost.

A major question is, is the quality of work with tractors as good as with mules? Will there be any difference in other costs due to the power unit? Unfortunately, there are no data pertaining to these questions, and they will have to be approached from a qualitative basis.

It is my opinion, that most planters consider tractor work equal to or superior to mule work in all operations except cotton cultivation, and tenant wood-hauling. Cotton cultivation with tractors requires more precision than with mules. Many planters believe that cotton cultivation with tractors is inferior to cultivation with mules in two respects: First, chopping (hoe work)

costs are increased; secondly, it is more difficult to maintain a stand, which is an important yield factor. This belief in part, accounts for tractors being used more for land preparation and in feed production than in cotton cultivation. However, many planters maintain that cultivation with tractors is superior to cultivation with mules on land heavily infested with grasses, because of heavier equipment.

As to the effect of the power unit on crop yields, although no definite data are available, the opinion of planters is that there is no difference in yields of crops other than cotton when worked with mule or tractor power, if the same thoroughness prevails in seed-bed preparation, but often the tractor is conducive to better seed-bed preparation. There is a considerable difference of opinion in regard to cotton yields when cotton is cultivated with tractor and mule power. Perhaps the majority are of the opinion that yields from cotton cultivated by tractors are less than yields from cotton cultivated by mules. Again, this is a question of individual opinion, which is based upon individual operation.

Space will not permit of discussion on the effect of the power unit upon net income.

NEW TYPES OF FARM EQUIPMENT AND ECONOMIC IMPLICATIONS

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Past Developments

There have been in the United States two rather definite farm power and machinery eras, namely: the human-power and animal-power eras. We are now apparently well started into a new period, that of mechanical power. Considerable overlapping has occurred but the invention and use of horse-drawn machinery had some effect on labor requirements in agriculture as early as 1850. By 1910 gas tractors and equipment for use with them were in sufficient use to increase production per worker but had little effect on the horse and mule population until 10 years later. While the hoe and shovel, and work animals including the ox, are still in common use in some sections, there has occurred in this country within the past 100 years a shift, first from human muscles to animal power in agriculture, and then from animal to mechanical power.

With each change the power available in agriculture has been

increased. Before the advent of mechanical power units each agricultural worker had the equivalent of about 1.5 horse power available for farm work in addition to his own muscles. At the present time each agricultural worker has an average of possibly 7 horse power exclusive of automobiles on farms. This change from muscles to motors, while yet far from complete, has greatly affected agriculture. While sufficient information is not available for enumerating all of the effects of technology on agriculture, some effects of farm power and machinery are quite apparent. It is the purpose of this paper to enumerate some of them, point out present trends, and indicate possible future developments.

Some Effects of Mechanization

Changes in farm power in the United States and the introduction of new machinery following the need has (1) reduced labor requirements per unit of crop production; (2) reduced the number of agricultural workers required for the production of food; (3) increased the acreage of harvested crops per worker; (4) increased the investment and overhead cost of machinery per farm; (5) made available for other purposes considerable land formerly required for the production of horse feed; (6) made the farmer more dependent upon prices of farm commodities than when animals were the chief source of power; (7) made him less dependent on itinerant labor. These changes occurred largely between 1920 and 1930 and were most evident in areas suitable for large scale production methods.

With reference to farm labor requirements, the Brookings Institution[1] reports that the index of agricultural production per year of labor has increased from 100 during the 1897-1901 period to 132.9 for the 1927-1931 period. During the same period the index of capital invested in farm buildings, livestock, and machinery increased from 100 to 126.9, and total agricultural production from 100 to 144.2. Thus while there occurred an increase in the investment index of 26.9, including the value of over 4,000,000 automobiles on farms, the total agricultural production index increased 44.2 and that of production per year of labor 32.9.

In the shift from muscles to motors the fuel required for power is changing from farm crops to petroleum products. With a reduction of more than 8,500,000 horses and mules on farms, and with the use of approximately 1,200,000 tractors, it has been estimated that 30,000,000 acres of crop land formerly required

[1] America's Capacity to Produce, by Edwin G. Nourse, The Brookings Institution, Washington, D.C., based on data furnished by O. E. Baker, Bureau of Agricultural Economics.

for production of livestock feed have been made available for other crops. Possibly an additional 10,000,000 acres would be required to feed workstock formerly used in cities. Mechanical power units, including automobiles on farms, are now using possibly 2,250,000,000 gallons of petroleum fuels and 100,000,000 gallons of lubricating oil annually.

Recent Developments

Farm machinery, like machinery and methods employed in manufacturing, transportation, and communication, is constantly changing. As the market becomes saturated for a particular class of trade, improvements have been made to widen the field of usefulness of existing models or new machines have been developed. Improvement in farm tractors and development of machinery for use with tractors comprise the major developments in farm equipment in recent years. Much has been accomplished in improving the design and construction of farm machinery and in the use of high grade materials, all of which make for more efficient performance and longer life. Rural electrification is also bringing to the farm home many conveniences and a source of power for farmstead use.

For a time mechanical power favored large-scale production, such as small grain in the Great Plains States. The introduction of the general-purpose tractor about 1925, however, widened greatly the field of usefulness of tractors as this type of power unit was designed especially for use in row crops such as corn and cotton. In more recent years the smaller, one-plow tractor made its appearance, and also pneumatic tires for tractors and farm machines. Nearly 80 percent of all wheel-type tractors sold by manufacturers in 1935 were of the general-purpose type, many of which were mounted on pneumatic tires.

Small combines, like large combines, reduce labor requirements over other methods of harvesting. Further, the initial investment in the combine may be less than for the machines displaced. For example, a medium-size threshing ring in the corn belt might be composed of ten farmers having altogether 600 acres of grain. Each farmer would have a binder. Ten 7-foot binders at present prices would cost about $2,500, and one 28-inch thresher about $1,500, making a total investment of $4,000. Two 12-foot combines costing $1,500 each, or four 5-foot combines costing $650 each, would handle this acreage. Omitting consideration of bundle wagons, binder twine, extra power units, and other accessories for the binder method of harvesting, an initial investment of

$2,600 to $3,000 in combines would do the work of $4,000 investment in binders and a thresher.

Possible Future Developments

In view of trends towards mechanical power and power-operated machinery in row-crop territory a further reduction in labor requirements and need for hired labor is expected, but at a decreased rate in comparison with the 1920-30 period. This is because the new machines are going into areas of small or family-size farms, where the bulk of the farm work is usually performed by the farmer with family labor, and expansion in acreage per farm is not feasible. No further increase in farm machinery "overhead" is expected as the cost of the new items of equipment is, in general, no greater than that of the machines displaced. However, future developments may upset these predictions. A mechanical cotton picker and a sugar-beet harvester, both of which appear to be much closer at hand than formerly, would greatly reduce labor requirements and dispense with much hired labor in the production of these crops.

New crops such as tung oil trees, pyrethrum, and in the south, pine trees for the production of paper, may utilize the acreage formerly needed for feed for work stock as the soybean crop is now doing in the corn belt. Nearly 2,500,000 acres of soybeans harvested as grain are now grown in the United States. Industry is apparently using an increasing quantity of agricultural products. According to a report issued by a manufacturer of automobiles, crops from over 500,000 acres are now used in the production of 1,000,000 automobiles in this particular plant in addition to hides from 30,000 head of cattle, mohair from 87,500 goats, wool from 800,000 sheep, and lumber from the equivalent of 20,500 acres of forest. New uses of existing farm products include alcohol made from grain and other crops for internal combustion engines; plastics from various agricultural products; absorptive agents in drying grain, and insulating materials, from waste materials such as corn cobs and grain straw.

Interest in farm work by contract is being stimulated. Custom work in plowing, harvesting, feed grinding, corn shelling, and grain cleaning and treating may be effective in reducing peak power loads and the investment in machinery on some farms. Large power units can usually be operated at lower cost per horsepower hour developed than small units provided the annual use is sufficient to justify the investment. A contractor with suffi-

cient work to keep a tractor in operation for a large number of hours annually can doubtless perform certain farm jobs at lower cost than if done by the farmer with equipment which he is in position to purchase.

THE POWER PROBLEM IN RELATION TO THE FARM BUSINESS

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This discussion will be limited by two factors: the necessity for brevity and the fact that the data used were not primarily obtained for a power study and therefore are not so adaptable as they might otherwise have been. In some cases the number of farms considered is rather small. In such cases, no definite conclusions can be drawn unless in accordance with other studies, including a better sample. They must be considered as illustrative only.

In Kansas, the relative change in the number of tractors as compared with that of horses and mules over the last score of years represents the response of farmers to the power problem. The number of tractors increased from about 2500 in 1915 to more than 63,000 in 1936, while the number of horses and mules decreased from more than one and one-third million to approximately one-half million. If we could consider the trends linear over the twenty-year period following 1915 there was an increase of more than 3000 tractors per year and a decrease of more than 40,000 horses and mules per year. But the trends are not linear. (See Fig. 1.)

There is a wide difference in the utilization of power machinery in the various type-of-farming areas in Kansas. A comparison has been made between areas 4, 9, and 11. Area 4 is in northeast Kansas where corn is the chief crop but wheat and oats are grown in rotation. The modal size of farm in this area is the quarter section. The topography is rolling. In areas 9 and 11 wheat is the most important crop with some corn and other row crops, corn being considerably more important from an acreage standpoint in area 11 than in area 9. In both areas the modal size of farm is a half section with the range strongly toward larger sizes. In area 4 the most important type of farming is livestock-specialty with a close second in general farms, while in areas 9 and 11 cash-grain farms predominate. In both areas 9 and

11 the topography is from slightly rolling to level. In terms of the Soil Conservation Service, slopes A and B greatly predominate.

In 1934, for each 10,000 acres of crop land there were 17.3 tractors in area 4, 25.4 in area 9, and 12.3 in area 11. Probably a better comparison can be made between the number of tractors and the number of farms. For every tractor there were 7.9 farms in area 4, 1.3 in area 9, and 2.2 in area 11.

By analyzing typical farms used in the Agricultural Adjustment Project an estimate can be obtained of the percentage of farms in the various size groups with tractors. Since each typical represents, on the average, 25 to 30 farms the analysis of 338 typical farms actually represents the results from more than 9000 farms. No farms larger than a half section could be shown for area 4 and no farms smaller than a quarter for area 11. In area 9, sizes ran from 80 acres to a section. In area 4 the percentage of farms with tractors ranged from 8 percent for 80's to 50 percent for 320's. In area 9 the range was from 13 percent for 80's to 97 percent for 640's. In area 11 the range was from 12 percent for quarters to 65 percent for 640's. A comparison of the percentages of farms of the same size with tractors for the three areas, shows that for 160's there were 17 percent, 40 percent, and 12 percent with tractors for areas 4, 9, and 11 respectively. For 240's the percentages were 36, 57, and 17 respectively, and for 320's the percentages were 50, 74, and 31. In area 9, 95 percent of the 480's had a tractor and 14 percent had two tractors. In area 11 only 46 percent of the 480's had tractors and only 1 percent had two tractors. It is clear that the differences in percentage of tractors between areas cannot be attributed entirely to size of farm since there is a considerable variation for farms of the same size. Some deserved difference between area 4 and area 9 might be attributed to topography since area 9 is more nearly level. However, on this basis area 11 should have more tractors than area 4. The figures have not been adjusted for differences in crop acres on the same size farms but it does not appear that this was a dominant factor as among these particular areas.

A comparison has been made in Figure 2 of the relative importance of farms with tractors in groups of different sizes and varying acreages of the most important crop—corn in area 4 and wheat in areas 9 and 11. One of the first features to note on this chart is the difference in the percentage increase in tractors on

farms of the same size as the acreage of the chief crop increases. As the acreage of corn increases, the percentage of tractors tends to decrease over a considerable part of the range or to rise rather slowly. As the acreage of wheat increases the percentage of tractors increases at a rather rapid rate over most of the range. The regression lines are free-hand approximations. In area 4 the percentage of farms with tractors tends to become less as the acreage of corn increases on 80-, 160-, and 320-acre farms. On 240-acre farms there is a considerable period of increase, from 40 up to about 120 acres of corn, and then a decrease. In area 9 there is a sharp increase in the percent of farms with tractors as the acreage of wheat per farm increases. Area 11 is intermediate between areas 4 and 9. Corn and wheat are, on the average, a little nearer balanced. The rate of increase in tractors as the wheat acreage increases in area 11 is much less than in area 9. However, there is little tendency in any size group toward a decrease in number of tractors with increase of the principal crop as in area 4. Some explanation may be in order for the decreasing portion of the curves for most size groups when the acreage of wheat approaches the total acreage in farm. Apparently this is due, in large part, to nonresident owners who may hire the work done, to members of a family using a tractor that has been listed with the home farm, and similar circumstances.

Size of farm and type of crop are only two of a large number of factors which affect the utilization of power equipment on farms. On some farms exclusive tractor power may be advisable, on others exclusive horse power. However, on a large number of farms a combination of the two types of power is used. When a tractor and horses are used instead of horses alone, there are certain advantages and disadvantages. On many of these points investigators, in general, agree. On others there is less uniformity of opinion. Time does not permit a discussion of each point separately. A summary of the more important points might well include the following:

The significant fact is that the introduction of tractor power modifies the farm organization and operation in a number of different ways. Some of these modifications are direct, others indirect; some tangible and measureable, while others are more or less intangible and difficult of measurement. Some are on the receipt side, others on the expense side. An ordinary comparative cost statement does not reflect all these modifications.

In the first comparison, farms were selected of approximately

ADVANTAGES AND DISADVANTAGES OF TRACTOR POWER[1]

Advantages	Disadvantages
Increases size of farm (1) More acres (2) More intensive cultivation	Increases investment in power
Reduces work stock (1) Reduces cost (2) Releases feed for other livestock	Increases investment in machinery
Reduces feed cost of horses remaining	
Opportunity for custom work	Increases percentage of cash costs Horses more adaptable to size of business. Horses more adaptable to small, rough or highly diversified farms
Belt work—non-competitive with horses	More skilled labor required
Reduces labor requirements, direct and indirect (1) More labor on productive enterprises (2) More leisure	Increases fixed charges (some authorities hold contrary view)
Increases yields (1) Timeliness of operation (2) Better cultural practices	Increases risk (1) By increased size of business (2) If power equipment is specialized, adjustments are slower

[1] So far as this paper is concerned, the comparison is between farms without tractors and farms with combination of tractor and horse power.

the same size as measured by crop acres. This may approach the hypothesis of holding the crop acreage constant. In the second comparison, farms were selected with approximately the same

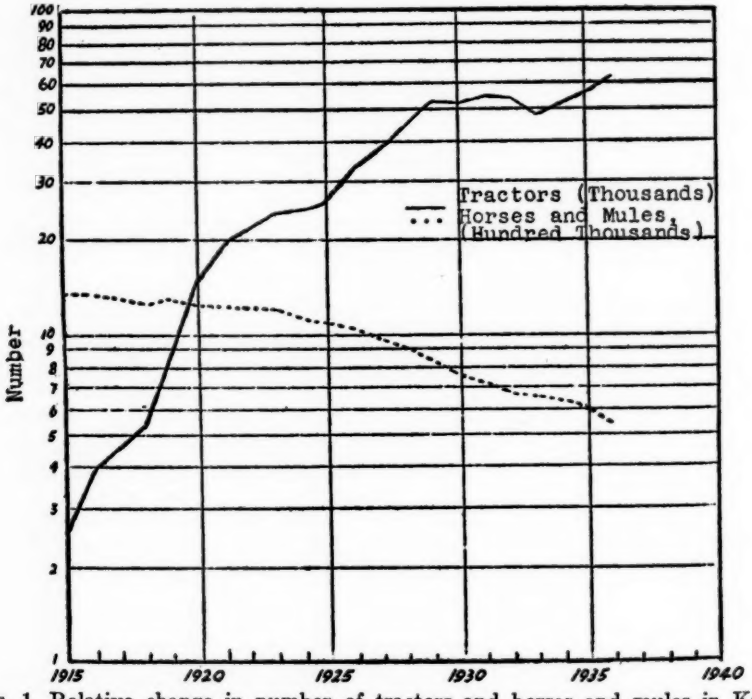

FIG. 1. Relative change in number of tractors and horses and mules in Kansas. (1915-36)

Source: Reports of the Kansas State Board of Agriculture, except for horses and mules in 1936 which are from the Kansas State Tax Commission.

requirements in months of man labor. This may approach the hypothesis of holding the labor constant. The latter method gives a better picture of the modifications introduced with tractor power. Comparisons with larger farms than shown in the example were handicapped by lack of records on horse farms of larger sizes. This very absence in a group of farmers considerably above the average in business ability may be significant.

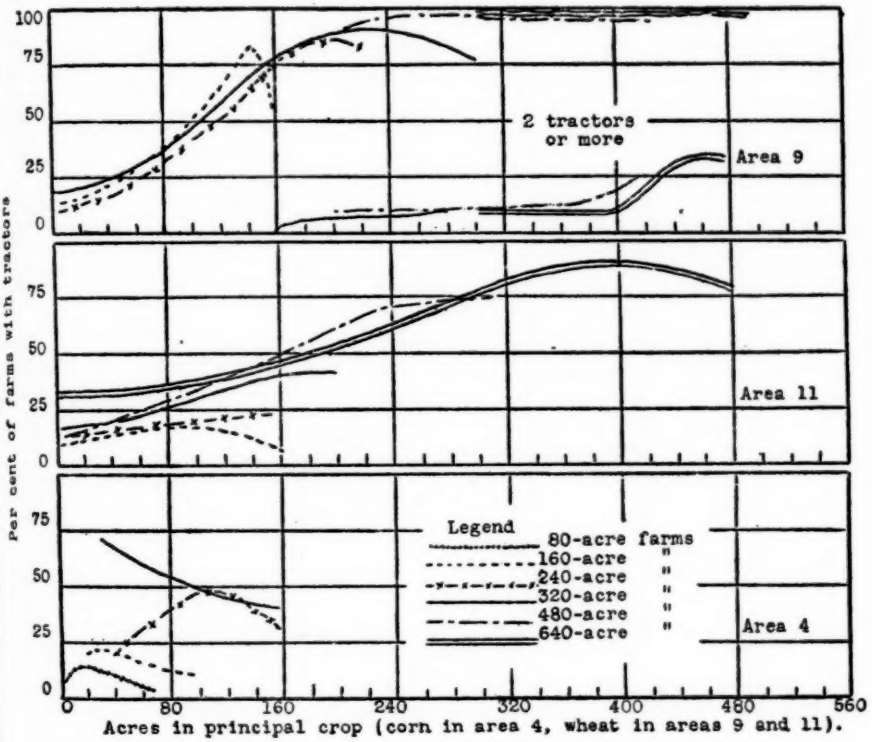

FIG. 2. The relation of the percent of farms with tractors to the acreage in wheat or corn on farms of different sizes in three type-of-farming areas in Kansas.

One of the outstanding facts is the greater volume of business on tractor farms. Both receipts and expenses are greater.

In 1935, crop yields and prices for farm products were fair. Would comparisons in other years and under different circumstances show similar results? Comparisons made for other years and other areas indicate a greater advantage for tractor farms when prices are fair to high than when prices are low. There is also greater advantage for tractor farms when yields are fair to good than when yields are poor. The advantage of tractor farm-

ing is greater on large farms than on small farms and on farms with a large percentage of small grain than on farms with a high percentage of row crops.

Discussion by L. J. Fletcher

Caterpillar Tractor Company

Lower Prices

The availability of improved types of mechanical farm equipment and the increasing ability on the part of the farmer to employ this equipment will result in lower production costs, at least where power, labor and machinery charges are a large item in the cost of the crop. Over a period of years this will tend to reduce the market price of the farm crops so produced.

The reason is clear: By and large, farmers grow those crops on which they can make a profit. Where they are able to reduce their production costs they will continue to grow the crop even though the price drops below some past average level. Thus a larger supply will be available which will tend to hold the price at a lower level.

A low selling price is of value to the producer, assuming of course that the price is still high enough to allow him a reasonable profit. A low market price insures a greater industrial and non-food consumption for in those categories price is a ruling factor in consumption. There will also be a greater food consumption when prices are low in many classes of farm commodities such as dairy and livestock products, fruits and fresh vegetables.

Greater Spread in Production Costs

A greater spread of production costs will likely result as ability to operate and manage mechanical equipment becomes more important than muscular ability and willingness to work long hours. This widening of the bracket between the high and low cost producer will increase the problem of those who desire to insure a suitable income to all farmers and to maintain them all as independent farm operators and, if possible, as farm owners.

Farm mechanization increases the ability of the farm operator to handle any given sized farm. Farm machines are largely responsible for the disappearance of women and children as workers in the fields and is displacing the "hired man." Relative efficiency in production will determine the size of the farm project unless social legislation prevents.

Hired Power

Hired power, that is, the employing of others to do certain regular and nonrecurring farm jobs is a factor to consider in any farm power program. The carrying out of a soil conservation program, which calls for the building of dams for ponds, or terraces and outlets, depends in most places on the farmer securing outside help to plan the work, supervise it and do it. Small farmers also may find it cheaper to hire most of their heavy field and belt work. The place of the farm power contractor in any community

will depend upon his ability to render necessary farm services in a more profitable way than any other available to the independent farmer. In many farming areas the contractor has the advantage of using his equipment more hours per year, employing larger and stronger than average equipment which reduces the labor charges per unit of work done, and becoming skilled in certain more or less specialized types of work, such as all kinds of earth moving, hedge and tree pulling and farm lot logging and sawing timber.

Economists Looking Into Engineering

The agricultural economist is becoming acquainted with more of the inside pictures of engineering. Where in the past, horses were compared with tractors—all sizes and types of tractors being considered the same—we are now in a period where types and sizes of tractors are being studied by classes. A knowledge of how to translate engineering terms into terms more readily usable in farm cost calculations is now necessary.

As an example, engineers state the fuel consumption of an internal combustion engine in pounds of fuel used per horsepower hour developed and usually at continuous full load. The farmer buys fuel by the gallon, so weight per gallon is required .The cost per gallon of the fuels under consideration is needed. The performance of engines under typical farm loading, which run from idling to full load, and average, between one-half and two-thirds full load is more important than data concerning continuous full load performance.

To illustrate the various ways that relative efficiencies may be expressed, compare the results of the Nebraska tests of a Diesel engine and a high combustion gasoline engine tests No. 273 and 249 respectively.

The Diesel did 7.9 percent more work than the H.C. gasoline engine per *pound* of fuel consumed (rated load, on the belt).

But the Diesel fuel weighed 7 pounds per gallon and the gasoline 6⅛ pounds per gallon.

So, the Diesel did 23 percent more work than the H.C. gasoline engine per gallon of fuel consumed.

But Diesel fuel sells for 7.1¢ per gallon and H.C. gasoline for 12.7¢ per gallon (no tax).

So the Diesel did 121 percent more work than the H.C. gasoline engine on a dollar's worth of fuel.

The picture ahead in the field of farm power is one of continued mechanization. The efficiency in the translation of fuel into power will increase—higher quality work will be attained—more durable machines will be built, and more comfort will be secured for the operator. More farm products will be secured with less expenditure of time, effort and materials. The agricultural engineer is striving continuously along that path and in so doing he feels he is serving society well.

MILK MARKETING PROBLEMS[1]

POSSIBILITIES AND LIMITATIONS OF PUBLIC CONTROL IN MILK MARKETING

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Public control in milk marketing is not new. As early as the 70's the Ohio Agricultural Reports covering the deliberations of the State Board of Agriculture and talks of Farmers' Institute lecturers were giving attention to the need of public action to control adulteration of milk and its products. During the 80's a considerable body of legislation designed to prevent fraud in the sale of cheese was passed in Ohio.

Around 1900 the cities began to move into public control of milk supplies. Cleveland began farm inspection about 1900 and put all dealers under license in 1908.

This early state and city legislation has been followed by a long series of laws and regulations dealing both directly and indirectly with dairy products. In the last five years the field has been extended to include control of prices and the regulation of competition.

Large milk markets have an individuality not found in respect to those of most farm products. The growth of a city milk market is much like the growth of a tree. Just as no two trees are exactly alike in their ring growth, so no two milk markets have developed in exact similarity. Today public control with reference to milk means principally price stabilization and guidance in market practices. Problems and trends in this form of public control are illustrated by recent developments in several markets.

Columbus, Ohio, experienced state supervision for two years, ending July 1, 1935. The most significant change has taken place in wholesale distribution. Very soon after the Burk Act expired one of the large grocery chains informed the independent dealer from whom it was buying milk that it must have a substantial discount or the business would be transferred to the local unit of a national distributing concern. The explanation was that agreement as to Columbus prices had been reached in a conference of executives of the respective companies in New York City. The local independent concern granted the discount to hold the business.

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by Leland Spencer.

Within the past year in the Akron, Ohio, market, the dealers had refused to continue the contracts they had with the producers' association but had been buying on the basis of monthly price conferences. No agreement was reached as to October prices by conference and on October 1 the producer association withheld all members' milk from the dealers. The dealers sought supplies outside the existing milk shed and a deadlock ensued that lasted twenty-one days and proved extremely costly both to producers and dealers. An aftermath of the strike has been an effort on the part of one of the national concerns operating in the market to obtain its supply from individual producers at a flat price.

The Detroit market has been operating for several months on a voluntary agreement basis with a federal market administrator. Recently a new distributor came into the market and initiated a price cutting orgy in wholesale trade and later followed with a string of stores selling at eight cents retail. This price is four cents under the doorstep price. It is evident that the eight-cent price can be maintained only if the dealer has a source of supply costing much less than that of competing dealers. Many questions and problems arise from these situations.

There is a real danger that public control may tend to freeze margins and rates and create vested interests that will prove costly to the consumer. There is an effective means of controlling this danger. It is consumer cooperation. While the potency of so-called consumer representatives on milk boards or commissions may be doubted, consumers organized into cooperative societies hold a two-edged knife.

State and federal authorities often move too slowly to keep apace of economic changes. The best protection against this evil is strong producer and dealer organization with keen and active leadership.

An example of state control at its best, under sane and constructive administration, is found in Indiana. In the Fort Wayne area there is effective coordination of state and federal control.

A new method of milk market stabilization is being tried out in Kansas City, where agreements and contracts between distributors and the milk producers' association are recognized and supported by a federal order. The plan is that enforcement will be had through local instead of federal courts.

The Federal Evaporated Milk License which has established a formula basis for computing minimum prices to be paid producers for milk going into this use has brought a high degree of

stabilization in this field and has met with general favor among producers.

The success of any program of public control depends to a large degree upon the personnel chosen to administer it. On this score the Agricultural Adjustment Administration is to be highly commended. It has selected as its personnel men qualified by training and experience in the field of milk marketing and with tact and ability in the handling of the difficult problem of getting men to work together.

There is a pressing demand for reasonable stabilization of prices and protection to those engaged in the production and marketing of fluid milk. If the industry fails to bring this about, attempts to accomplish the same ends through legislation will continue. It is a well settled policy that the marketing of milk shall be safeguarded and protected by social control.

PLANT OPERATING EFFICIENCY IN THE MARKET MILK INDUSTRY

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Excess capacity of facilities for milk distribution appear to have been an important cause of milk wars by which producers in many areas were victimized during the period 1930-1935. Federal and state authorities who have attempted to stabilize milk prices had limited success because they could not deal effectively with conditions resulting from the struggle among individual distributors for increased volume.

The reasons for industry inefficiency are to be found in the imperfect functioning of our economic machinery. It has been assumed that the force of competition would automatically insure that each industry would operate efficiently, the inefficient firms being rapidly and surely forced out of operation. Furthermore it has been assumed that competition would cause the benefits of technological improvements to be widely dispersed among consumers generally in the form of lower prices or costs of service or in the form of higher wages or shorter working hours. For a number of reasons, which will not be enumerated here, the competitive force has been so curtailed that it has failed to perform this automatic function. Many of the benefits of technological improvements have been highly concentrated. Indirectly a large part of these benefits have been reinvested in individual indus-

tries causing them to become periodically oversupplied with processing facilities.

Some excess capacity is normally necessary in all industries as a margin of safety in case of temporary breakdown of some operating units, to meet occasional peak loads, and to provide for future expansion. Even if due allowance is made for such necessary excess capacity, many industries will be found with capacity far in excess of what is necessary to care for exceptional needs and expansion.

This problem appears to be particularly important in the market-milk industry because of the intense public interest in the distribution of market milk. Milk is an essential article of food for rich and poor—a vital necessity for infants and children. Thus while many other industries appear to be more inefficient than the milk industry, they do not arouse the intense public interest that the milk industry does. If distributors in individual cities do not or are unable to improve the efficiency of their industry, they are likely to experience increased public control or efforts to force reorganization.

If such an approach is to be made in the market-milk industry, it will be necessary to gather a considerable amount of factual material concerning (1) the importance of the various factors influencing the efficiency of operation of individual plants, especially the importance of size of plant and (2) the reasons for inefficient industry organization. It will also be necessary to develop measures of plant capacity and industry efficiency.

Plant Operating Efficiency. As recently as the beginning of the World War market milk was handled almost entirely by hand. There were few mechanical devices and milk was distributed by a large number of small concerns or by producers. In contrast, a modern milk plant is very completely mechanized. This transition has had two important economic results. First, the amount of direct human labor necessary to handle a given volume of milk has been greatly reduced; or conversely, a much larger volume of milk can now be handled per employee. Second, the volume of milk that can be handled conveniently and economically in a single plant has been increased greatly.

Unfortunately very little comparable data are available as to factors influencing unit costs of processing market milk. Some data are available as to distribution costs in some markets, but these have been prepared for other purposes and are not sufficiently detailed to throw much light upon the problem of effi-

ciency. It is difficult to so correlate the information in these various studies as to determine the influence of volume and other factors upon unit processing costs or to ascertain the behavior of different items of costs (labor, fuel, depreciation, etc.) with varying volumes of output. Other studies have shown that some cost items remain relatively constant regardless of volume, others decrease for a while and then increase rapidly with increase of volume, whereas others continue to decline almost indefinitely as volume is increased. The relative importance of these various cost items and their behavior with changes of volume determine the shape of the total cost curve.

Delivery Efficiency. It would seem that the opportunities for reduction of unit delivery costs with large volume per delivery unit are more limited than in the case of processing costs. There are definite limits to the volume that can be handled per truck or per delivery man. Within these limits, however, there is room for wide variations of delivery costs depending upon the number of points carried per truck, type of equipment used, miles traveled, etc. Under actual operating conditions a greater absolute difference is usually found between high and low retail delivery costs than in processing costs. This is due partly to the fact that delivery costs account for a proportionately larger share of the total costs of distribution and partly to the fact that there are wide variations between the number of points carried per delivery wagon, in type of equipment used, and in deliveries per stop and per mile.

Even in regard to this function the advantage appears to rest with plants handling a large volume. They are in a better position to so arrange their delivery routes over a period of time as to insure delivery of the largest number of points per truck, per mile, and per labor hour.

There are other costs indirectly associated with delivery such as selling, consumer contact, and advertising which should be considered in conjunction with delivery costs. These costs per unit seem to be amenable to considerable reduction with increased volume. This phase of distribution is usually the one which arouses most public interest. The overlapping of delivery routes, even in outlying scattered delivery areas, is patent. Very important reductions in distribution costs could undoubtedly be effected if there were fewer and larger plants and if overlapping could be reduced to a minimum.

Industry Efficiency. In the study of the milk market of the cities on the east side of the San Francisco Bay it was found that the

combined capacity of 20 plants in 1930 was 85,000 gallons, whereas the peak volume of milk distributed in the area was 35,000 gallons. In 1935 the number of plants had increased to 30 while the total volume distributed daily had declined nearly 10 percent. Similar conditions exist in practically every other major milk market in California, and probably in numerous cities in other states. There was a considerable excess of capacity in 1930 and the position had become still less favorable in 1935.

It is probable that a similar excess of capacity existed in 1930 in respect to delivery equipment. Many firms had delivery routes with too small a number of points and in addition individual routes covered too wide a territory. The decline in efficiency of utilization of delivery equipment between 1929 and 1935 was as great, or greater than, the decline in the utilization of processing capacity. It is difficult for a distributor to rearrange his routes even if the volume of sales decreases materially.

There are four methods whereby individual distributors attempt to expand their output, namely, increased advertising and selling activities, improved quality and service, price cutting, and merging of plants. Efforts to utilize the first three of these methods have had little effect other than to transfer volume from one distributor to another. Mergers between 1920 and 1929 resulted in a closer correspondence between combined capacity of all plants and volume of milk distributed. Unfortunately decreases in unit operating costs resulting from technological improvement and increased volume per plant came at so slow a rate that they were not passed on to consumers in the form of a lower price. Instead such improvements were capitalized largely in the form of goodwill. Thus while there was a decrease in excess plant facilities, there was an increase in capitalization. For example in market A the combined plant capacity declined from 25,000 gallons daily to only 15,000 gallons daily, whereas the capital invested increased from $360,000 to $700,000, a large part of which was goodwill. It is an anomaly that, while goodwill may be an important asset for an individual firm, there is no such thing as the goodwill of an industry. If a large part of the investment of an industry is in the form not of tangible operating facilities, but in the form of goodwill, that industry is relatively inefficient in that it is carrying a top-heavy capital structure.

New distributing firms, entering milk markets since 1929, were able to operate on a much lower investment per unit. They were able to purchase (or rent) land, buildings, and equipment at considerably lower prices than had prevailed prior to 1930. Further-

more, they started in with output adjusted more nearly to capacity. These two factors tended to a considerable extent to offset the advantages the older firms had in a larger volume. As the depression advanced, the unit costs of distribution of the older firms tended to increase with a widening gap between capacity and output, whereas in many instances the unit operating expenses of the newer firms tended to decline.

In considering plans for reorganizing the distributive system in any market the objective should be to strike a balance in plant capacities so that processing and delivery costs combined are the lowest possible.

If the reorganization is to result in relatively permanent improvement and market stability, the benefits of the reorganization as well as the benefits of future technological improvements should largely be passed on to consumers in the form of lower prices.

It is obvious that reorganization cannot be effected by the gradual competitive process leading to the elimination of inefficient plants. If increased and more severe public control and regulation are to be avoided, it would seem that the initiative would have to come from those in the industry—distributors themselves or distributors in cooperation with producers and representatives of the general public.

The most feasible procedure would appear to be for groups of plants to be amalgamated. The less efficient plants could be closed down and the volume concentrated in one or more large and well-planned units. If none of the existing plants is suitable it might be better to erect new plants rather than to expand poorly-adapted plants. Such reorganization would prove most successful if undertaken by all the distributors in a market. However, the same end may be attained if the plan is carried out by a small group of distributors. If through amalgamation they can effect a material reduction in unit distribution costs and margins, other distributors in the market may be forced to adopt similar measures.

If producers and some public agency assist in and are familiar with the purpose of reorganization, it should be easier to discourage new distributors from entering a market, in which the distributing plants are operating efficiently. Such reorganization may not prove ideal, but they appear to be a workable and sane approximation to ideal systems of distribution for individual markets.

THE SUPPLY AND UTILIZATION OF MILK IN PENNSYLVANIA

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The data used in this study were obtained mainly from reports submitted by dealers to the Pennsylvania Milk Control Board, to public health agencies, and various trade organizations. The reports were supplemented and checked by means of personal interviews with milk dealers and various individuals in the industry. The statistical data summarized in this report pertain principally to the supply and utilization of milk received or purchased by Pennsylvania milk dealers in the month of April, 1934. It would have been desirable but was impracticable to obtain and analyze similar data for a twelve-month period. However, the volume for April is approximately one-twelfth of the yearly total. In grouping the data for the several counties and districts, the location of the plant rather than the exact points of production or sale was the determining factor.

During April, 1934 the equivalent of 323 million pounds of milk was handled as milk or cream by all dealers located in Pennsyvania. Forty-seven percent was received directly from producers. The other 53 percent came either through country plants or from other dealers. Of the total volume handled by all dealers, 58 percent was used for fluid purposes, 12 percent for fluid cream, and 30 percent for manufacturing (Table 1).

TABLE 1. UTILIZATION OF MILK HANDLED BY ALL DEALERS LOCATED IN PENNSYLVANIA, APRIL 1934, AND THE YEAR 1934
(In thousands of pounds)

	April 1934*		Year 1934**	
	Pounds of milk	Percent of total receipts	Pounds of milk	Percent of total receipts
Fluid milk	186,805	57.9	2,215,545	56.8
Fluid cream	38,814	12.0	457,905	11.7
Manufacturing	97,141	30.1	1,226,444	31.5
Total utilization of milk and cream	322,760	100.0	3,899,894	100.0

* The figures include 71,051,866 pounds of milk sold outside Pennsylvania by dealers located in the state.
** The estimates for the year 1934 were obtained by applying seasonal indices to the April data.

The average daily per capita sales of fluid milk and cream in the state amounted to .59 of a pint. There was considerable variation in the per capita consumption of milk in the several districts of the state. The consumption of milk is considerably lower in Pennsylvania than in some of the other Northeastern States. Of

the total fluid sales it is estimated that approximately 17 percent was pasteurized, and that 31 percent was sold at wholesale.

There were 889 pasteurizing distributors, 4798 distributors of raw milk, 220 country plants, and 117 manufacturing dealers operating in Pennsylvania during April, 1934. Of the manufacturing dealers, 98 did not have permits to sell fluid milk. Of the 323 million pounds of milk handled by all dealers in the state, approximatey 54 percent was controlled by pasteurizing distributors, 8 percent by distributors of raw milk, and 19 percent was shipped out of the state through country plants; 5 percent was handled by manufacturing dealers who had permits to sell fluid milk, and 14 percent by dealers who did not have permits to sell fluid milk.

Nearly three-fourths of the dealers in the state each handled less than 155 quarts of milk daily. Many of these were farmers who distributed their milk direct to consumers in nearby towns. There were 36 dealers in the state each of whom purchased over a million pounds of milk during April, 1934. These 36 dealers handled over one half of the total volume of milk. If each of the large consolidated dairy groups is considered as one, the 10 largest concerns controlled 43 percent of the milk.

Of the combined receipts of the pasteurizing distributors and the distributors of raw milk, 71 percent was sold as fluid milk, 14 percent as fluid cream, and 15 percent for manufacturing and miscellaneous uses. In the majority of the larger milk markets in the state about the same proportion of the total receipts of the pasteurizing distributors was used for each of the various purposes. There was, however, an unequal distribution of the fluid milk market among the farmers in the state. Some farmers sold practically all of their milk at fluid prices, while others in the same community supplied a manufacturing market. Approximately one-fourth of the producers who sold milk did not participate in a fluid market. Due to the fact that under the classified price plan producers usually received a higher price for milk used for fluid purposes than for milk used in other ways, this condition may lead to a more general use of market-wide pools.

During April, 1934, 86 million pounds of milk handled by Pennsylvania dealers were manufactured in this state. In addition, there were 10 million pounds of milk shipped out of the state for manufacturing purposes. Approximately one-third of the milk manufactured in the state was used for making ice-cream; one-third was used for manufacturing foodstuffs such as milk choco-

late, candy, and soups, and the remainder was used chiefly for butter, cheese, and evaporated milk. Nearly two and one-half times as much milk was manufactured in this state during June as during January, the month of least manufacturing. Milk was not in all cases manufactured in Pennsylvania at the most advantageous points. Some areas close to the market were supplying manufacturers while more distant areas were shipping to fluid milk markets. This situation was largely due to the lag in adjusting the type of market operations to changing conditions.

The 220 country plants in Pennsylvania were owned by 68 different dealers. In all, 181 of the plants were operated by concerns that also controlled the utilization of the milk after it was shipped from the receiving station. The principal market supplied by approximately 75 of the country plants was the New York metropolitan market. Philadelphia was the chief outlet for 48 of the plants, Pittsburgh for 23, and numerous secondary markets within the state for 15. Nine had no regular outlets and consequently sold on the open market. There were 33 country plants located outside of Pennsylvania in Maryland, Delaware, New Jersey, Ohio, Wisconsin and West Virginia from which milk was shipped chiefly to markets within the state. The study revealed that some of the country plants in Pennsylvania are poorly located with respect to their markets thus requiring needless extra expense for transportation. Considerable savings could be effected by drawing supplies from points closer to the market.

The average production per farm during the month of April was approximately 4150 pounds of milk. November, December, and January were the months of lowest production and May, June, and July were the periods of highest production. About 42 percent more milk was handled during June than during November. The seasonal variation was much less in the Philadelphia milk shed than in other areas. In six southeastern Pennsylvania counties the range in seasonal production for 18 country plants under the base-surplus plan was less than one half that for the 20 country plants not under the plan.

There were 41 farmer organizations actively engaged in the marketing of milk. Nine were distributing milk, five were chiefly bargaining and selling organizations, 23 were operating manufacturing plants, and four were operating country plants. Approximately 40 percent of the milk handled by all dealers in the state was under cooperative control. Cooperatives controlled 57 percent of the milk handled by pasteurizing distributors in the

state. The Dairymen's League controlled 34 percent of the total volume of milk handled in its territory by country plants, pasteurizing distributors and manufacturing dealers with permits to sell fluid milk; the Interstate Milk Producers' Association controlled 41 percent, and the Dairymen's Cooperative Sales Association, 52 percent of the total volume of milk handled in their respective territories.

In Pennsylvania at the time of this study there were 60 state and municipal agencies administering health regulations pertaining to milk. There were 195 country plants in Pennsylvania under the supervision of the various health departments. The State of Pennsylvania maintained inspection over 146 of these plants. The State of New Jersey and various municipalities in that state inspected 45 plants; New York City inspected 91; the city of Pittsburgh inspected 26 plants. In all there were enough inspections made by various health agencies to cover 341 instead of 195 country plants. This is an average of nearly two inspection agencies per plant. Some plants were meeting the regulations of five or more municipal or state health agencies. Both farmers and dealers would benefit if needless duplication of inspections were avoided. A uniform long-time health program should be developed and adhered to by all the health departments in the area.

More milk and cream was shipped from Pennsylvania to markets in other states than was received by Pennsylvania dealers from out-of-state sources. During April, 1934, Pennsylvania received the equivalent of 45 million pounds of milk from other states. Total shipments to other states amounted to 71 million pounds. New York and New Jersey were the principal states to which this milk was shipped. There were approximately 1.6 gallons of milk shipped out of Pennsylvania for each gallon received from out-of-state sources. The major part of the milk shipped out was for use as fluid milk and cream. The major part of that shipped in was used for manufacturing purposes. The Pennsylvania farmer sold 3.5 quarts of milk out of the state for fluid purposes for every quart shipped in for that purpose. He sold two quarts of fluid cream out of the state for every quart of fluid cream shipped in. The restrictions of imports might well result in a larger percent of Pennsylvania milk being used for manufacturing with consequently a lower net return to Pennsylvania farmers. Before attempting to restrict the receipts of milk or cream from other states, the possible effects upon the Pennsylvania farmers supplying out-of-state markets should be carefully considered.

A need exists for similar data to be compiled currently by some appropriate agency such as the Milk Control Board or the State Department of Agriculture as is done in other important dairy states, notably New York, Vermont and California. This study was so designed that it can be used as a foundation upon which to construct a current reporting system. Periodic reports from 75 of the larger dealers in the state would include approximately two-thirds of the total volume of milk. If in addition to these 75 periodic reports the detailed study could be repeated at five- or ten-year intervals; current estimates could then be made of the supply and the utilization of milk in the state.

COMPETITIVE MARKET FORCES AND THEIR EFFECT UPON FLUID MILK CONSUMPTION

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In milk marketing research greater emphasis has been placed on the problems of supply than on the problems of demand. In only a few scattered cases have consumers pressed forward with their point of view. Indeed, even where their concern was injected into the scene it was more at the instance of certain local groups or leaders of political interest than by consumers per se.

In an attempt to reduce expenditures for fresh fluid milk, many housewives are replacing or supplementing it with other dairy products, primarily evaporated milk. It is the purpose of this paper to present the findings of a study on fresh and evaporated milk consumption for various income groups. Specifically, the purpose of the study was to discover the relationship between family income and the amount of fluid and evaporated milk consumption as well as to determine the more apparent reasons for the choice of one product in preference to the other in various household uses.

For the purpose of obtaining information on the use of fresh and evaporated milk, 1029 families (comprising 4160 individuals) living in Milwaukee, Janesville, and Kenosha, Wisconsin, were interviewed. Of the families included in the survey, 95 percent used fresh fluid milk as part of their regular diet. The consumption of fluid milk increased directly, although not in a pronounced manner, with the increase of family income. The daily per capita consumption was .32 quart for those with annual incomes below $800 as compared with .44 quart for those with incomes of $2,000 or more.

Evaporated milk was used by slightly less than half of the families included in the survey, but those who used it consumed a surprisingly large quantity. The weekly per capita consumption of evaporated milk by families with incomes below $400 a year was 1.2 large cans as compared to .85 cans for those in the $400 to $800 income class, .73 for the $800 to $1200, and .55 cans per week for those above $1,200.

The per capita evaporated milk consumption *decreased* continuously with an increase of family income. Fresh milk consumption, on the other hand, *increased* continuously with each increase of family income. The lowest income group used an average, as above mentioned, of 1.2 cans of evaported milk and 2 quarts of fresh milk per week. Whereas, those receiving over $1,200 used .55 cans of evaporated milk and 2.8 quarts of fresh milk weekly.

Every type of analysis seems to indicate rather clearly that in all income groups below $1,600 per family, evaporated milk replaces fluid milk rather than serving as an addition to its use. In every income group up to and including the $2,000 income, those who use evaporated milk used less fresh milk than those who used no evaporated milk. The difficulty of establishing cause and effect relationships is to be recognized, yet it appears a significant fact that this relationship held throughout the entire range of family incomes up to $1,600. Consistently, those who used evaporated milk purchased less fresh milk than did those who used no evaporated milk.

On cream consumption, one is led to the conclusion from the evidence brought out in this survey that in the case of families with moderate incomes, the substitution of evaporated milk for cream is very common.

This survey emphasized a principle generally accepted by economists that the lower the purchasing power of the individual, or the greater his marginal utility of money, the more carefully he will canvass the alternatives to find substitutes for a food product which, though desired, is so expensive as to be a heavy drain on the family budget. The results emphasized that price was the most or among the most important considerations for purchasing evaporated milk. Over one half of the housewives answering the question gave price as the most important reason for its use. Aside from its use in infant feeding, convenience, and flavor for some uses, were listed as other important reasons.

It has been recognized, though probably not stressed among

fluid milk producers and distributors that the difference in retail price between fresh fluid and evaporated milk has gradually been increasing during the past two decades.

The demand for fluid milk is generally assumed to be relatively inelastic. When considered from the point of view of a short-time period, that supposition probably is correct. When a longer time is involved there may not be that high degree of inelasticity ordinarily presumed. The price-quantity relationships over a long time may be vastly different from those over a short one. There are forceful suggestions that they are. Then again, the elasticity probably is not the same during one period of time as it is during another. As substitutes replace the original with more and more ease, the demand for the original product becomes more and more elastic. Thus the demand for fresh milk is today more elastic than it was ten or even five years ago. Such a conclusion seems to be supported by the fact that apparent consumption of evaporated milk in the United States has increased continuously since 1923, the earliest year for which comparable figures are available.

From the point of view of those concerned with marketing fluid milk, results of this type of study prompt one to raise a broadside question as to whether the fluid milk price policies followed in many cities give adequate consideration to consumer responses.

Economic problems cannot be solved until causes are first ascertained and relationships established. The deeper we go into those problems which concern themselves with marketing, prices, and production, the more essential it becomes that fundamentals of demand, utility and taste preferences be understood not only generally but for specific products. Such research may lead far afield from the immediate object of treatment but is as essential as were the fundamental studies which Robert Millikan gave to physics and Madame Curie to radium.

LIVESTOCK ADJUSTMENTS[1]

SOIL CONSERVATION AND REGIONAL LIVESTOCK ADJUSTMENT[1]

The soil conservation programs, as such, are relatively young and their full significance has been rather hard to determine due to the usual unusual climatical conditions. However, regardless of the above, we should be in a position to determine rather definitely the results to be expected when we replace a given acreage of feed grains with hay and pasture. Our research men in Agronomy, Animal Husbandry, and Agricultural Economics have made many studies and investigations, which, if properly interpreted, will go far in answering the above questions on livestock and crop adjustment. The amount of a given feed required to maintain a 1000-pound animal, or produce 100 pounds of livestock products, will be about the same regardless of programs, and the total digestible nutrients or net energy in a ton of hay or a bushel of corn of a given quality, remains the same. Past studies dealing with supply and price should have direct application to the future. The producer under the new programs will, no doubt, react to prices plus conservation payments in the same manner as he has to prices in the past.

The adjustment between the different crops and between crops and livestock has been based on demand for those products as reflected by prices paid. If the farmer could receive a greater return by feeding his crops to livestock, that has been his practice. If, over a period of years, a farmer was able to produce milk at a lower cost by using his own land for hay and pasture and shipping in concentrates from a distant point, that became the practice. A corn belt farmer who buys his feeder steers for 7 cents per pound, and receives 12 cents per pound for gains put on, may prefer to grow the crops that he can turn into 12-cent beef rather than use his land to produce 7-cent feeder cattle. All research work dealing with soils, crops, livestock, and economics should be drawn upon when attempting to arrive at the probable influence of a change in our cropping system.

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[1] This paper is a summary of the Round Table discussion on The Influence of the Soil Conservation Program on Regional Livestock Adjustments which was held during the Twenty-seventh Annual Meeting of the American Farm Economic Association at Chicago, Illinois, December 29, 1936. Prepared by A. F. Vass and O. V. Wells, who served as chairman and secretary respectively, of the round table, are responsible for the data and views set forth only to the extent that they have tried to summarize accurately the material which was presented during the discussion.

Those who either read or sent papers to be read at the round table included F. F. Elliott, Agricultural Adjustment Administration; A. G. Black, Bureau of Agricultural Economics; W. W. Wilcox, Iowa State College; J. E. Wills, University of Illinois; O. R. Johnson, University of Missouri; H. C. Filley, University of Nebraska; M. H. Saunderson, Montana State College; R. T. Burdick, Colorado State College; A. H. Lindsey, Massachusetts State College; W. F. Knowles, New Jersey State College; and Marvin A. Schaars, University of Wisconsin.

Even though the need for soil conservation is not questioned, it must be recognized that we are interested also in the effects of the changes in cropping systems and practices which are needed in the interest of soil conservation upon the numbers, production, and regional distribution of the several classes of livestock. Agricultural economists have been actively discussing this problem since the inception of the original agricultural adjustment program in 1933. The data and arguments which were advanced as a round table discussion are here summarized.

F. F. Elliott discussed the changes which actually occurred in the acreages of feed grains and hay and in livestock numbers during the recent past. These changes are summarized in Tables 1 and 2, where both national totals and regional indexes for the

TABLE 1. LIVESTOCK NUMBERS ON JANUARY 1, 1934, 1935, 1936, COMPARED WITH 1928–32[1]

Year	United States		Regional Indexes, 1928–32 = 100				
	Number	Index	West	Southwest	North Central	Southeast Central	Northeast
	1,000	%	%	%	%	%	%
			Beef Cattle				
1928–32	9,398	100	100	100	100	100	100
1934	12,493	133	127	137	139	126	103
1935	10,827	115	110	115	116	130	106
1936	10,912	116	111	110	124	124	103
			Milk Cows				
1928–32	23,354	100	100	100	100	100	100
1934	27,059	116	111	126	116	120	106
1935	26,236	112	107	121	111	122	103
1936	25,622	110	104	120	108	117	104
			Hogs				
1928–32	58,151	100	100	100	100	100	100
1933	62,127	107	101	133	103	117	95
1935	39,004	67	66	78	58	100	80
1936	42,541	73	70	80	66	100	86
			Sheep and Lambs				
1928–32	50,482	100	100	100	100	100	100
1934	53,713	106	99	131	112	103	93
1935	52,251	104	95	117	116	105	88
1936	51,690	102	93	116	117	103	86
			Chickens				
1928–32	458,929	100	100	100	100	100	100
1934	455,182	99	94	94	101	97	106
1935	411,581	90	84	81	88	94	101
1936	426,145	93	89	85	91	96	106

[1] Compiled from current reports of the Division of Crop and Livestock Estimates. Hog numbers given for 1933 rather than 1934, since numbers on hand January 1, 1934 were affected by government purchase of small pigs in the fall of 1933.

Western, the Southwestern, the North Central, the South-East Central, and the Northeastern States are shown. (Eleven western states are included in the West, Texas and Oklahoma in the Southwest, twelve mid-western states in the North Central, fourteen southern and southeastern states in the South-East Central, and nine northeastern states in the Northeast.)

The data for 1928-32 are used as a measure of normal, since

TABLE 2. ACREAGE AND PRODUCTION OF FEED GRAINS AND HAY: 1933, 1935, 1936, COMPARED WITH 1928–32[1]

Year	United States		Regional Indexes, 1928–32 = 100				
	Acres, or Production	Index	West	Southwest	North Central	Southeast Central	Northeast
	1,000	%	%	%	%	%	%
ACREAGES HARVESTED							
Corn and Grain Sorghums							
1928–32	110,357	100	100	100	100	100	100
1933	113,031	102	108	98	101	108	107
1935	104,795	95	92	97	87	114	115
1936	99,495	90	83	83	84	109	107
Oats and Barley							
1928–32	52,660	100	100	100	100	100	100
1933	46,219	88	94	83	87	97	99
1935	52,202	99	101	113	98	103	98
1936	41,535	79	85	91	75	105	97
Hay, Tame and Wild							
1928–32	68,458	100	100	100	100	100	100
1935	68,131	100	96	122	94	120	101
1936	67,777	99	91	128	95	117	101
GRAIN AND HAY PRODUCTION							
Thousands of Tons of Feed Grains Produced							
1928–32	100,425	100	100	100	100	100	100
1933	84,839	84	92	68	81	111	99
1935	93,042	93	95	96	88	114	119
1936	60,406	60	81	58	51	103	102
Thousands of Tons of Hay Produced							
1928–32	80,911	100	100	100	100	100	100
1935	89,742	111	95	132	115	127	108
1936	70,273	87	93	100	81	98	86

[1] Compiled from current reports of the Division of Crop and Livestock Estimates. Revised estimates of acreage and production of hay not available for 1934.

this is the most recent five-year period unaffected by drought or by the adjustment or conservation programs of the Agricultural Adjustment Administration. In 1933, the year just before the inauguration of the agricultural adjustment program, feed-grain and hay acreages were not greatly different from those which prevailed in 1928-32. It should be noted, however, that corn acreage was up, especially in the areas outside the corn belt. On January 1, 1934, or in the case of hogs, January 1, 1933, the numbers of both dairy and beef cattle, of hogs and of lambs all were well above, and the numbers of chickens were about equal to, the numbers on hand in the period 1928-32. Cattle numbers were well above the normal level in all regions except the Northeast. Hog numbers had shown the most marked increases in the Southwestern and the South-East Central States, while sheep and lambs were up in the Southwestern and the North Central States, with numbers in the Western States at about the same level as in 1928-32.

Since 1934 the numbers of all classes of livestock have decreased with hogs showing the greatest, and sheep the smallest, relative decreases on January 1, 1936. These decreases in live-

stock have been accompanied by a decrease in the acreage and production of feed grains, but the acreage of hay has shown no significant change, although production was severely reduced in 1934. Feed-grain production, however, showed a sharp decrease in both 1934 and 1936, due to the severe droughts, and was somewhat under the 1928-32 level in 1935. The South-East Central and the Northeastern States were not affected materially by the drought in 1934 and 1936, and feed-grain acreages and the numbers of all classes of livestock, except hogs, were almost exactly the same level in 1936 as in 1933. In the Western, North Central, and Southeastern States, however, crop acreages were cut and yields severely curtailed chiefly as a result of the drought in 1934 and 1936, and all classes of livestock were below the 1928-32 level on January 1, 1936.

Summing up, *Elliott* indicated that a study of the changes in acreages and numbers from 1928-32 into 1933 or January 1, 1934, and from there into 1936, led to the conclusion that there were wide swings in livestock numbers from 1928 to 1934 which were to be accounted for chiefly by responses to changes in the price situation, and that since 1934 the drought with its consequent severe reductions in grain, hay, and forage production had been the chief factor affecting the livestock situation.

A. G. Black discussed the probable effects of a soil conservation program upon the livestock industry from the national standpoint.[2] *Black* indicated that an analysis of the subject involved (1) an estimate of the aggregate shift from intensive to extensive crops which might be expected, (2) a determination of the probable distribution as between crops of this aggregate adjustment, (3) an estimate of the probable effect of these changes upon the production of the several classes of livestock, and (4) a determination of the probable effect of these changes upon prices and income from livestock.

Consideration of the alternative bases for estimating the aggregate amount of crop shifting indicates that a total shift from intensive to extensive crops of between 15 and 50 million acres is possible, depending upon the criteria selected.[3] But on the basis of the County Planning Project, the most reasonable estimate for the immediate future appears to be a decrease of 20 to 25 million acres in soil-depleting crops from the normal acreage and a cor-

[2] For an earlier and more extended discussion of the same problem by Dr. Black, the reader is referred to A. G. Black, Long-Time Significance of a Soil Conservation Program to Livestock Producers, an address before the American Institute of Cooperation, Urbana, Illinois, June, 1936.

[3] See the report, Looking Ahead on Agricultural Policy, mimeograph, Bureau of Agricultural Economics, December, 1936.

responding increase in the hay and pasture acreage from normal.[4]

On the basis of the most probable inter-crop distribution of this acreage, it appears that the acreage devoted to wheat and cotton will be decreased from normal by something over 10 million acres with about the same reduction taking place in the acreage of corn and oats in the corn belt. Assuming average yields, feed-grain production may be decreased by around 8 percent for the country as a whole, while hay and pasture production would be increased significantly. Any net increase in total digestible nutrients, however, should be small, especially if the decrease from normal in feed derived from wheat and cottonseed also is considered.

As a result of these changes in crop acreage and production, total livestock and meat production may be increased slightly above normal. The increase, however, is likely to be less than the increase in the quantity of feed produced, since the efficiency of feed utilization also will be changed as the relative numbers of the several classes of livestock are changed. In addition, some increase in the number of workstock now seems probable so that some additional feed may be absorbed by workstock.

Hog production in the next few years probably will increase from the present low level, but the decreased production of feed grains resulting from the agricultural conservation program should partly counteract this movement. While the shift from grain to hay may tend to increase cow numbers it will tend to decrease milk production per cow, and it is doubtful if the commercial production of dairy products will be affected greatly by the conservation program. The regional trends in dairy production which have been evident for some time probably will be continued, and perhaps even slightly accelerated by the program, while consumption of dairy products in rural areas probably will be increased. Cattle numbers probably will be increased somewhat as a result of an increase in hay and pasture under the conservation program. The resulting increase in slaughter supplies, however, probably will be less than the increase in numbers and small in the aggregate, since it will be necessary to feed cattle for a somewhat longer period on grass than if grain were fed. The number of sheep in the native sheep states may show some increase as a result of the changes in hay and pasture due to the conservation program, but about 70 percent of the total sheep population is now in the Western Range Region.

[4] The county planning data are summarized in the report, The County Planning Project: A Statistical Summary of Results Obtained in 1935-36, mimeograph, Program Planning Division, Agricultural Adjustment Administration, November, 1936.

Altogether, it appears probable that the effects of the soil conservation program upon livestock production in the next few years will be obscured and perhaps overshadowed by other factors such as the weather and the price situation. Prices of corn and other feeds would be expected to decline should feed-grain production be more nearly normal in 1937 and 1938. With short slaughter supplies of livestock in prospect, livestock prices under such conditions would be relatively high and the production of livestock, especially hogs, would be greatly stimulated.

Given several years with a normal or near-normal corn crop, hog production might well increase to a level equal to 1928-32 and cattle numbers trend upward toward the 1934 level. As a result, livestock producers may be faced with a situation similar to that which prevailed in 1933 within the not too distant future, and it should be emphasized that the conservation program represents only one of several means of stabilizing the production of livestock, and cannot be considered as being equivalent to production control. It should be stressed, however, that the conservation program should tend to offset the effect of any increase in production which might be expected.

W. W. Wilcox indicated that studies which have been carried out in Iowa lead to the conclusions that:

(1) Increased acreages of soil-conserving crops may be expected to have little effect on total feed production in Iowa, except to the extent that depletion is checked and yields are maintained over a long period of time at a higher level than would be the case without a conservation program.

(2) Elasticity in the use of feed in Iowa by different classes of livestock both from farm to farm and area to area, and historically, is sufficiently great to suggest that a 10 percent reduction in grain accompanied by a corresponding increase in hay and pasture will not in itself have any significant effect on either livestock numbers or production.

(3) An increased acreage of hay and pasture on farms selling grain at present may be expected to be accompanied by an increased livestock production on these same farms and a reduction in the volume of grain sold. This in turn will make the problem of soil conservation and the maintenance of an adequate standard of living even more acute on the small erosive farms where additional grain usually is purchased.

Wilcox's data indicated that there was no close relationship between the changes in acreage of hay and pasture and changes in cattle numbers in the several type-of-farming areas in Iowa be-

tween 1920 and 1935, that there is a considerable range within which grain and roughage can be substituted for each other, and that within the cash-grain area itself the heavy grass farms had a 16 percent smaller acreage of soil-depleting crops but only a 7 percent smaller production of grain, so that total feed production was not materially different.[5] Attention also was called to the fact that creamery butter production increased about 175 percent between 1920 and 1933, while the acreage of hay and pasture declined at least 15 percent.

J. E. Wills' study of land use and livestock production on 55 farms in Illinois with the same operators from 1925 to 1934 indicated that:

(1) An increase in grain production is associated with an increase in hog production, although the 16 farms which decreased grain production also showed some increase in hog production, and an increase in hay and pasture is associated with an increase in all classes of cattle.

(2) The influence of conservation programs on livestock production will vary in different areas of the state. In areas that produce surpluses of corn, a reduction of corn acreage will not necessarily result in a reduction of the amount of corn fed. On the other hand, in areas where the corn crop has all been fed, a reduction in corn acreage will result in less corn being fed—unless more is purchased.

(3) Changes in livestock production and in feeding practices will develop slowly. Areas of the greatest possibility of increasing various types of livestock production are those areas that have produced large surpluses of feed grains. However, in such areas there are many factors that retard the expansion of livestock production. The proportion of tenant-operated farms is large and many farms are not adequately equipped to handle livestock on a large scale. What is of even greater importance, most farmers in such areas are neither skilled nor interested in large-scale livestock feeding. This raises the interesting question as to how practical a conservation program we can have in these grain areas without materially increasing livestock production.

(4) The thought is commonly expressed that many Illinois farmers could well use a considerable increase in hay and pasture with their present livestock. Hay could economically be substituted for much of the straw and stover now fed, and many of our pastures are badly overgrazed.

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[5] The reader also is referred to W. W. Wilcox, Inter-relationships of Livestock Production and Cropping Systems on Iowa Farms, JOURNAL OF FARM ECONOMICS, November, 1936.

(5) The number of beef cows will likely increase, particularly in areas where conservation suggests a large increase in pasture. However, it does not seem likely that any area in the state will develop a system of marketing most of their cattle as feeder stock; rather, the tendency will be to feed them out on the farm where produced.

(6) Changes in hog production will be, to a considerable degree, influenced by the balance now existing between corn production and hog production. In recent years there has been an increase in the utilization of legume pastures in hog production. An increase in legume acreages will likely stimulate this practice still further. Farm flocks of sheep appear to afford a good utilization of an increased acreage of hay and pasture, and they may be increased by conservation programs.

(7) An increase in the number of milk cows is probably the most frequently mentioned influence of the conservation programs. Some observers look for a marked increase in industrial activity centering in Illinois cities, and have an excellent illustration of their contention in the current boom in the Peoria area. To the extent that there is a realization of this tendency to locate more industry in Illinois, the influence of conservation programs may well find its outlet in increased dairy production.

O. R. Johnson indicated that the conservation program would probably have the effect of minimizing the differences in rate of change as we go from the more productive to the less productive parts of the corn belt, although in those areas where erosion is more serious and less productive soils are found, greater shifts will be brought about.

The conservation program would have a marked effect on the production of feed and the consequent production of livestock in Missouri. Studies carried out recently indicate that a considerable acreage of land should be taken out of tilled crops especially corn, and that the greater part of this should be shifted to rotation pasture or meadow land. The reduction in corn acreages will be offset by some increases in the acreages of wheat, barley, and soybeans and by the fact that it will be the less productive acreages which are shifted. It would seem that wheat can be produced for around 50 cents per bushel. At the same time, the acreage of pasture will be increased and considerable improvement in the quality of the present pastures should be shown.

A smaller number of hogs will be kept and the level of pork production will depend upon whether or not feeding efficiencies are increased. Cattle numbers will be rebuilt or increased, and

apparently there will be some increase in grass-fed cattle with only a short finishing period on corn. It should be noted, however, that it will take several years to offset the effect of the dry seasons of 1934 and 1936, that a considerable portion of the acreage which will be shifted is now on the margin, and that the type of shift envisioned is inevitable and will result regardless of an official conservation program, so long as we continue to place educational emphasis upon conservation.

H. C. Filley indicated that the conservation program might be expected to result in the production of more roughage and less grain in Nebraska, and that cattle numbers would be increased. With respect to the type of cattle that will be increased, operators of large farms would be expected to prefer cattle belonging to the beef breeds, while those on medium and small-sized farms probably would prefer dual-purpose cattle, although some farmers might be expected to increase dairy cattle and produce crossbred calves and butterfat.

A decrease in corn production should be followed by a decrease in pork production, while some increases in sheep and poultry may be expected in order to utilize farm labor better, especially if prices stay at a reasonable level. But the fear that alfalfa acreage will be increased to such a point as to result in an overproduction of beef cattle is groundless where the rainfall is less than 30 or 36 inches, since nonirrigated land in the Great Plains Region which has been used for the production of alfalfa for several years is dry as far as the roots of the alfalfa penetrate and cannot be used for alfalfa until the sub-soil moisture is restored. The conservation program will probably accelerate the rate of increase in size of general grain and stock farms. The farm must be large enough for a profitable unit.

Farmers will probably produce a larger proportion of the feeder cattle on the home farm. The major part of the cattle will probably go to market with less finish than they normally carry. If hay and pasture are more abundant and corn scarcer, we will have to become accustomed to grass-fat cattle and a somewhat thinner cover of fat on corn fed beef.

With respect to the range cattle region, *M. H. Saunderson* indicated that there was not as yet much actual information relative to the influence of adjustment measures on livestock production and inter-regional competition. A reasonable assumption might be that the shift from corn to hay and pasture in the corn belt would be accompanied by an increase in the number of

roughage-consuming animals with less total grain for finishing, so that the West might expect somewhat greater competition in feeder cattle production. The competition for cattle and lambs from the better ranges which may go either to feedlots or direct slaughter also may be increased by the production of a similar grade of animals in the Middle West.

There are, however, offsetting elements in the Northwest. In the foothill range areas, operators who have taken better care of their ranges stand out as being able to go to market with steers and dry cattle that can compete favorably with cattle which have been grain-finished. Overstocking is common, and it is probable that the same quantities of better-quality meat can be produced with fewer livestock numbers than have been carried in the past on many areas and ranges in the Northwest. On the prairie ranges, considerable improvement might be brought about both through adjusted grazing and the building up of a better grade of stock. A study of relative cattle prices indicates that the competitive position of the western-grown cattle has been weakened gradually since 1920, and it is a fair guess that a lack of knowledge and of application of grazing land conservation and management technique has been one of the strongest influences in changing the price differential.

R. T. Burdick of Colorado indicated that although the chief problem of sheepmen centers around unstable prices of sheep and wool, the wide acceptance of the soil conservation program in the range areas should act as a stabilizing influence and result in the elimination of some part of the fluctuation in sheep and lamb prices, since it should tend to curb over-expansion. Some increase also may be expected in the weight of lambs sold relative to the number of ewes kept as over-stocking is eliminated. More sheep will be kept on ranches when sheep prices justify the improvement of carrying capacity, or the diversion of lands otherwise used, to sheep use.

Competition from any expansion of the livestock industry in the Mississippi Valley will hit western sheepmen less severely than it will the cattlemen, as the control of grazing which goes with soil conservation practices can be exercised over wide areas under more favorable conditions by sheepmen than by cattlemen.

A. H. Lindsey indicated that the current conservation program in New England was such as to emphasize soil-building or soil-improvement rather than diversion. The advantages of this

type of program stand in direct contrast to the effect of the old agricultural adjustment program. The net result of participation should be more abundant and cheaper supplies of hay and pasture with a consequent lowering in the cost of dairy production.

A recent study with respect to pasture improvement indicated that slightly under 2500 cows were kept on the farms studied in the year before pasture improvement, while over 3400 cows were run on the same pastures in 1935-36. Grain fed per cow was decreased and milk production was increased. All cooperators in the conservation program cannot react in the above manner, but the results of the study should be indicative of the direction in which changes may be expected.

The tendency to increase the number of cattle and to continue to purchase about the same amount of grain as in the past will be strongest on the hill and country farms, since producers located near cities cannot well increase the acreages devoted to pasture or roughage production. The Northeast, especially New England, has never found it profitable to grow all its own dairy cow replacements, and the expected improvement in pasture and increases in forage yields might have the two-fold effect of increasing milk production per cow and encouraging the growing of replacements, so that more efficient and better acclimated herds would result. Any resulting increase in milk production may be expected to result in a decrease in the composite milk prices below the level which otherwise would be received, and this decrease will be further reenforced by any increase which the conservation program may bring about in Midwestern dairy production.

W. F. Knowles indicated that it would seem reasonable to expect any decrease in the acreages of feed grains to result in increased feed-grain prices to the Northeastern dairymen in the several years just ahead, but that they should benefit from any pasture improvement which the program may bring about in the Northeast, and that they also stand to gain over the long run through increasing yields and production of feed grains in the corn belt.

The immediate situation appears to be less feed grain and comparatively higher prices; more hay and comparatively lower prices; and more and better pastures. In a little while there should be as much feed grain as now, and eventually probably more. There is no escaping the conclusion that the Northeastern dairymen will find it to their advantage in the long run to feed

some of their grains and their hay, and to use some of their pasture for an increasing number of dairy cows in order to produce and sell butter fat. This means more competition and relatively lower prices for fluid milk in the Northeast, for it will result in more cream and canned milk being produced in the grain growing areas.

M. A. Schaars indicated that very little increase in beef cattle or sheep production will follow the soil conservation program in Wisconsin, but will turn to more intensive type of animal husbandry such as dairying. Dairying has been on the increase and in all probability will be accelerated by the conservation program. An increase in dairy production would be accounted for very largely by the fact that the shift from soil-depleting to soil-conserving crops in Wisconsin will not lessen, and may even increase, the aggregate amount of total digestible nutrients produced.

Summary. In conclusion, there are still differences of opinion as to the probable effect of a continuing agricultural conservation program upon the numbers, production, and regional distribution of the several classes of livestock. The broad theory is to the effect that a shift from intensive to extensive crops and pasture may be expected to work toward a decrease in grain-consuming animals, especially hogs, and an increase in hay- and pasture-consuming animals, especially cattle and sheep.

But there is a relatively wide divergence of opinion as to the degree of change which may be expected either in total or in any of the regions in question. Certainly there has been and is a wide elasticity with respect to the utilization of both feed grains and hay and forage from year to year and from farm to farm. In addition, the effect of the relative price situation upon the relative production of the several classes of livestock is at least as important as any prospective changes in the volume or composition of feed production. And we still need to know to what extent acreages actually will be shifted under the agricultural conservation program, to what extent yields will be increased, to what extent hay and pasture can be substituted for grain and feeding efficiencies changed, and to what extent the extension of the conservation program into the range areas of the West and the dairy areas of the Northeast will work to the advantage of those areas or regions and so offset any disadvantags which may be brought about by changes in livestock production in the corn belt and the South.

COOPERATION IN THE SOUTH[1]

THE PAST, PRESENT AND FUTURE OF COOPERATIVE COTTON MARKETING

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The fifteen years of cooperative cotton marketing may be grouped into three principal chronological periods.

The first period covers the cotton years 1921-22 through 1926-27 and can be designated as the *seasonal pool period.* Organization of the cotton cooperatives was commenced in the early part of 1920 and completed in 1923. Full advantage was taken of the depression of the early 20's. Earlier efforts in this field had been mostly local and spasmodic and had received little general attention. Not so this movement. All major cotton states from one end of the belt to the other were organized and an overhead association was created for sales and general coordination purposes. Intensive sign-up campaigns were adopted to make organization possible. Thousands of growers in every state responded to the appeals and the movement took legal and business form.

The requirements of membership were rigid. Every member agreed to pool all of his cotton for a period of years. An advance representing a part of the loan value of cotton, usually about 65 percent, was to be made at time of delivery and the balance remitted periodically during the year as cotton was sold. The new system was a radical departure from the old in which the grower sold his crop for cash as fast as it was ginned or held all or a part for sale at a future date.

Operations during the first period were conducted under many handicaps, both from internal operating and membership standpoints. Accounting systems had to be devised, operating technique acquired and personnel trained. It was a brand new kind of business and much experimentation was necessary, all of which resulted in costly maneuvers and impaired efficiency. On the other hand, many members lost their early enthusiasm, particularly when results were not as gratifying as expected. A great many of the original signers did not deliver their cotton even for one year. Litigation was resorted to in a few cases and, while the membership contracts were upheld by all courts, it was

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by G. W. Forster.

found inexpedient to force cooperation by legal means. Volume of business was maintained fairly well by continual drives for new members and the steady work of an itinerant field service in attempting to keep up the faith and performance of old members.

By way of summary, it may be said that this first period had these characteristics:

1. The zealous leadership of a large number of cotton growers who had a vision of a better and more efficient system of marketing the principal product of the South. Many of these men gave generously of their time and their money in what was considered a righteous and noble cause.
2. The ardent support of thousands of growers who signed contracts and fulfilled them.
3. The getting of experience for the first time by growers in the broader aspects of the business of marketing cotton. Through organization they were brought into touch with mills and future markets and learned of the various marketing services necessary to be rendered, whereas, before, marketing was simply a matter of taking cotton to the nearest town.
4. A greatly increased knowledge of grades and staples on the part of producers and a fair understanding of their relative values.
5. A new bargaining power for members and producers generally because of a better knowledge of values and an alternative to selling to the home town buyer. Many a grower received a better price by being able to say, "If you don't give me a half I'm going to ship to the co-ops."

With the expiration of the first contract period came the necessity of a new sign-up campaign. Many changes were made in the membership marketing agreement, chief among which were provisions for annual withdrawal from membership and the optional pool plan. These liberalizing changes were a result of objections to the ironclad features of the first contract and the price results of the initial operating period.

The optional pool was the antithesis of the seasonal pool in that the member was privileged to name the day of price fixation instead of the management. Here the producer could exercise his judgment as to price trends and select the level at which to sell. It not only gave the member this opportunity and individual responsibility, but it gave the producer's creditors a desired place in the operation. Thousands of cotton growers are not free agents in the time and place of sale of their cotton.

In the operation of the optional pool, the member received an advance at time of delivery of about 75 percent of value and was liable for margins in the event of severe price decline. After he exercised his right of price fixation, his advance was increased to 90-95 percent of the fixed value in connection with a provi-

sional sales settlement. At the end of the year a final settlement was made reflecting any additional amount due after final consideration of carrying charges, overhead and reserves.

This second period, or *optional pool period,* covered the cotton years 1927-28, 1928-29 and 1929-30 and was terminated suddenly and finally by the announcement of the Federal Farm Board on October 21, 1929 of its now famous 16¢ loan program. The first two years of this period had witnessed some rather sweeping changes in the philosophy and operating policies of the cotton cooperatives under the leadership of the American Cotton Growers Exchange.

Despite the fundamentally changed membership marketing agreement, it was found increasingly difficult to maintain membership and volume of business. The optional pool plan put the coops more nearly in direct competition with other handlers of cotton; it made comparisons easy and enabled members to evaluate price results of cooperation. In turn, management became aware of the vital necessity of obtaining for the members, in both the optional and seasonal pools, prices that were at least commensurate with prices outside the cooperatives.

Price forecasting was visualized as the major guide to sales and price fixation policies which would produce a satisfactory solution to the cooperative marketing situation. An increasing amount of attention had been given to the use of the futures markets in the last year or two of the first period (seasonal pool) —and now, under the changed conditions, futures trading became a dominant factor in the new scheme of things. A system of crop and price forecasting was inaugurated and operating policies were predicated largely on the figures and predictions developed. In the 1927-28 season the results obtained were surprisingly good but in the following season, with increased dependence placed on it, the system did not produce the predicted results. The sale of the cotton received in this year—1928-1929—had not been completed when the Farm Board made its 16¢ loan announcement.

The 16¢ loan plan was effectuated through the existing machinery of the cotton cooperatives. It may be said that its purpose was two-fold: first, to encourage cooperative marketing by stimulating deliveries to the seasonal pool of the cotton cooperatives; and second, to eliminate pressure from the cotton markets of the world by the removal of a part of the supply. Both of these objectives were considered proper and advisable under the authority of the Agricultural Marketing Act. Almost immediate-

ly following the announcement of the loan plan came the stock market crash and the precipitous decline in values of everything. The 16¢ loan was continued in effect to cushion the decline of the price of cotton.

From the announcement of the loan plan until the Cotton Stabilization Corporation settlement with the cotton cooperatives in April, 1930, the operations of the cotton cooperatives were subject to the approval of the Federal Farm Board. The effect of this was to give unsold cotton on hand in October, 1929 from the previous year's delivery the same status thereafter, from a sales standpoint, as the 16¢ loan cotton itself. What happened to prices subsequent to October, 1929 is a matter of history. The cotton price level was maintained for a short period by the loan value, but in a few weeks the market was down to 12 cents.

Reckoning day in April, 1930 found the cotton cooperatives financially embarrassed and at the mercy of the Federal Farm Board. The 16¢ loan, instead of strengthening the cooperatives, as was intended, had first made them the agents of this governmental agency and had then enslaved them to it. It was and is admitted that the loan was a form of stabilization operation intended for the good of the nation as a whole. Nevertheless, when settlement was effected the cotton cooperatives had been deprived of their preserves and, worse still, had been saddled with debts to be paid out of reserves of the future. The organized cotton farmers of the South have always felt, and feel strongly today, that there is still time for the government to right this wrong.

The characteristics of the second or optional pool period may be summarized as follows:

1. The liberalizing of membership marketing agreements to give members greater freedom of action and a larger responsibility in choosing the time to sell.
2. The introduction of the optional pool to make cooperative selling more comparable to the old system of selling, as to time and conditions of sale, and placing the cooperative more definitely than ever before in competition with old line cotton merchants.
3. The use of the optional pool by members to more accurately determine the value of cooperative selling. The management was put on the spot, so to speak, and was given the acid test of dollars and cents returns.
4. The getting of experience in the use of price forecasts as a major determinant of sales and price fixation policies.
5. Temporary increased interest in the seasonal pool by the emphasis placed on the efficacy of this plan of selling by the Federal Farm Board.
6. The loss of reserves and farmer ownership and control as a result of the stabilization settlement covering the 16¢ loan cotton.

The third major period in cooperative cotton history began with the organization of the American Cotton Cooperative Association in 1930 and extends to the present time. This six year period presents an interesting experience in the centralized direction and control of the handling and marketing of cotton for farmers. It might be called the *immediate fixation period* or *governmental agency period.*

Following the stabilization settlement with the cotton cooperatives, and shortly before this time, the Federal Farm Board sponsored the organization of the American Cotton Cooperative Association as a strong overhead association for the state and regional cotton cooperatives. When created, the American Cotton Cooperative Association was financed in large measure by the Farm Board and had as its stockholder members the state and regional associations. It possessed, by contract with its members, the authority for performing practically all the functions and services in cotton marketing. It was empowered to class, store, hedge, sell, ship, invoice, finance and insure all cotton received by the member associations. The only function left to the stockholding members was to receive from and account to the producer members for their cotton, and, in general, keep cooperative marketing alive with producers and the public generally.

One of the first acts of the new overhead organization was to contract with the Cotton Stabilization Corporation to handle its 1,300,000 bales of cotton. The American Cotton Cooperative Association and the Stabilization Corporation had the same management—the policies of the latter, however, were determined exclusively by the authorities in Washington. In this manner, the handling of government business was begun. It continued for several years.

Because of the continued decline in the price of cotton and the general feeling that cotton was under-valued, a plan of protection to the cotton South was worked out between the Farm Board and the American Cotton Cooperative Association which came to be known as the 90 percent loan plan of 1930-31. The plan provided that members of cooperatives placing their cotton in the seasonal pool would be advanced 90 percent of the value and that the cotton would not be sold for a period of three years except at a profit. If the market declined the member would not lose, if it went up he would gain. Nearly two million bales were held off the market under this plan; but there was still too much cotton in the world and the price went down to six cents in 1931. It stayed down until 1933 when the cotton accumulated under the 90 per-

cent loan was taken over from the cooperatives by the Secretary of Agriculture under provisions of the Agricultural Adjustment Act, and used as partial compensation to growers in the 1933 plow-up campaign.

The delivery of cotton to the seasonal pool under the 90 percent loan plan really marks the end of seasonal pooling or orderly marketing as its original sponsors conceived it. For the next two years the price was so disastrously low that very few growers could afford to hold cotton under any conditions. The full proceeds of sale were required to even partially satisfy the demands of creditors.

It was under these conditions that the immediate fixation plan sprang into prominence. The members required this kind of marketing service and the cooperatives adjusted their operating methods to the changed conditions. The immediate fixation plan gives the member the full market value at delivery, and, at the same time, permits him to retain a beneficial interest in any savings that result from the year's operations.

During the years 1931-32 and 1932-32 the cotton of the member associations of the American Cotton Cooperative Association was pooled in a Southwide pool. In this operation schedules of values were prepared by the American Cotton Cooperative Association for use by the respective associations in the assembling and payment of cotton. In theory, at least, these schedules were intended to be comparable in order to properly safeguard the interest of the individual associations in the pool, and, to be so prepared as to represent the approximate competitive value of cotton in the different states. Without the latter, obviously it would be practically impossible to secure the delivery of cotton to an immediate fixation pool.

For the two years of the Southwide pool, the state and regional associations operated on their own funds so far as operating expenses were concerned. They were, therefore, in the position of preparing and maintaining their organizations for the handling of cotton with very limited control, at best, over the biggest single factor in influencing deliveries, namely, the price or amount that could be advanced to the members. It was not surprising, therefore, that some associations received large deliveries and had relatively small operating costs per bale, while other associations had small volume and comparatively high costs per bale.

The experience of two years was sufficient to demonstrate the impracticability of a Southwide pool under existing conditions.

A very complicated system of accounting was necessary, in addition to the exercise of personal judgment in many matters, and there was no "check and balance" throughout the year, therefore the associations could not know during the year whether the operation was favorable or unfavorable to them and whether there would be equities due them at the end of the year for distribution to their producer members in final settlement of accounts. So, after two years, a somewhat different system was instituted, which is still in use.

Beginning with the 1933-34 season, a Purchase and Sales Plan was put into effect. This plan provides still further centralization of authority in ACCA with a view to overcoming some of the objections to the Southwide pool. State and regional associations enter into annual contracts with ACCA which stipulate, in brief, that the ACCA will conduct cooperative cotton marketing operations in their respective areas. All risks in the assembling, handling and sale of cotton are borne by the ACCA. All operating expenses within an approved budget are paid by ACCA. All schedules of values or buying limits are determined and promulgated by ACCA. All personnel is employed and paid by ACCA.

It really becomes a highly centralized operation. So much so that after the boards of directors of member associations have authorized the signing of the operating contract and have elected a director to represent them on the Board of Directors of ACCA, their job for the year is practically done. Thereafter, it is the full responsibility of ACCA and its operating personnel. The so-called state association offices become branch offices of ACCA and state interior classing offices likewise become local branches of ACCA from an operating standpoint.

The affiliated associations of ACCA do not function as operating entities, but simply as assembling units of a Southwide business operated as a Southwide unit. No attempt is made to segregate and analyze operations by branch state and regional offices. All income goes into a general fund and all expense comes out of the same general fund. The management of no affiliated association knows whether it is making or losing money for ACCA. Neither does the management of ACCA know. State and regional associations do operate on approved budgets, however. The operating contract provides that an operating budget shall be agreed upon by the member association and ACCA. In the absence of profits as a measure of results it is believed that state managers naturally place major emphasis, perhaps, too much, on volume and assembling cost per bale.

Of the thirteen member associations of ACCA, nine are represented on the Board of Directors by their joint or general managers or other officials who receive compensation, directly or indirectly, from ACCA. It might be said that this situation is an outgrowth of increased centralization and has been continued in the belief that no persons in the state or regional associations, other than the executives, are qualified by experience and knowledge of cooperative affairs to be directors, and, further, that it is too expensive to have two representatives, an executive and a director of the member association, attend ACCA board meetings. The inherent weakness of this situation in a cooperative has been recognized and efforts are being made to correct it.

The ACCA is a capital stock cooperative. In the beginning, stock was subscribed by the various state and regional cooperatives on a basis of their average volume of the preceding three years. Because of the depleted finances of the associations, stock was bought on terms of 10 percent cash, the balance in promissory notes. Voting was one member—one vote, however provision was made so that under some conditions shares of stock could be voted. Subsequently, by-laws were amended to eliminate the latter provision, which had never been used, and to authorize the issuance of both preferred and common stock and to limit the ownership of common or voting stock to one share to a member association. Savings were to be distributed in stock to stockholder members on a patronage basis until the total stock outstanding amounted to thirty million dollars.

In 1934, after the inauguration of the Purchase and Sales plan, the by-laws were further amended to provide that 50 percent of the net income of each year's operations shall be allocated to surplus (and stock dividends) and 50 percent to member associations on a patronage basis for distribution in cash to their grower members. And, in 1935, the by-laws were again amended to provide that 50 percent of net income, the half formerly allotted to surplus, shall be paid to the Farm Credit Administration for account of member associations as repayment on loans made to buy preferred stock in ACCA. This financial arrangement is referred to in a succeeding paragraph.

In addition to the small amount of capital stock obtained by the sale of stock to member associations, the ACCA arranged a large effective merchandizing loan from the Federal Farm Board. With its capital structure thus formed, it went into the money markets to obtain lines of credit for commodity financing. When the Central Bank for Cooperatives was created in 1933, the

ACCA became one of its first patrons, and, in addition, arranged a capital loan from the Farm Credit Administration's revolving fund. Loans from these sources were arranged in about the same way and on about the same terms as the earlier loans from the Federal Farm Board, except for interest rates which were considerably higher.

In 1935 the state and regional associations borrowed a total of $5,000,000 from the Central Bank for Cooperatives, on a five year repayment plan, for the purchase of preferred stock in ACCA. And, in 1936, the member associations borrowed $7,500,000 from the Central Bank to reloan to ACCA for capital purposes. In addition, ACCA obtained a direct loan from the Central Bank. The terms and conditions of these loans to the state associations were negotiated and handled by ACCA with the Central Bank for Cooperatives and allocated to the states on an equitable volume basis.

ACCA operations in 1933-34 were profitable and a considerable sum was diverted to surplus and stock dividends in that year and, despite operating losses in 1934-35 and 1935-36, the ACCA now has approximately $2,000,000 in surplus and capital stock, exclusive of the five million dollars mentioned above, or, inclusive of this, it has about $7,000,000. It will be seen, therefore that the ACCA is not entirely dependent on loans from the government. Just the same it might be well to emphasize the fact that adequate capital funds are necessary to the proper and advantageous commodity financing of a successful cotton business.

The creation of adequate capital funds of its own is the greatest job ahead of the cotton cooperative movement today. For three years determined efforts have been made in this direction and fair progress has been made, but not nearly so rapid as desired. The suggestion has been advanced that retains or reserves be taken from the value of the bale at time of delivery in order to speed up the process of accumulating capital. Such a plan is sound in theory and is being followed successfully by some cooperatives, but it would prove impractical and unworkable in cotton, particularly under the present centralized set-up and the popularity of the immediate fixation plan. It seems the only practical method of building up capital at present is from savings of successful operation.

Throughout this immediate fixation or government agency period, the ACCA has devoted a considerable part of its time and energies to the handling of cotton for the U. S. Government. As already mentioned, it started its career by contracting to

handle the stabilization cotton, then came the seed loan cotton of 1931-32 and 1932-33, the producers pool cotton of 1933, and the reconcentration of 12¢ loan cotton in 1935. The 10¢ loan of 1933 and the 12¢ loan of 1934 are not mentioned because this cotton was not handled under contract with the government, but, nevertheless, it was handled partly to assist the government in the attainment of its objectives. Many of these jobs extended from one year into another and some over a period of years.

It may be maintained that the income received from these services has justified the time and expense involved, but it is a debatable question. If ACCA had concentrated its full energies on the cooperative marketing of cotton during these years, the movement might be much further advanced today. Too much time and energy are still consumed in general welfare programs and not enough in solving operating and merchandizing problems and making a business success of cooperative marketing. Do not misunderstand me on this point. The cotton cooperatives should stand for the best interests of cotton growers, whatever they be, and work for these general interests, but their first duty is to the job of cooperative cotton marketing—and this job should receive full consideration until its major problems are mastered.

The ACCA has few well-defined policies. Because of the centralized operation and management which is entrusted with complete authority in financing, personnel and other related phases, the directors have not accepted much responsibility in initiating policies pertaining to internal operations. All of these matters have been left entirely to the management. The manner in which the Board of Directors is constituted has no doubt contributed to the tendency to leave policy decisions regarding practically all operating problems to the management. The fact that few directors are well acquainted with problems and situations outside of their own states, also contributes to this situation.

The impression is not intended that ACCA does not have operating policies. The point is that these policies need concise statement and lucid interpretation to directors, employees and members. Of course, not all policies should be given publicity, but there are really few that fall in this category. The deliberate and careful formulation of policies would be helpful to management and would guard against the pitfalls of decisions based on expediency. The very fact that the operation is highly centralized, geographically and otherwise, should emphasize the urgent necessity of carefully thought-out plans and methods—

not only to guide the business in the proper direction, but in order to develop a full and sympathetic understanding of the cooperative way in the minds of members and the public generally.

The American Cotton Grower, a monthly cooperative cotton magazine, published under the sponsorship of ACCA, is a medium which might be utilized in acquainting members everywhere of the operating policies and objectives of the cooperative cotton marketing movement. It likewise could be employed in giving facts and figures pertaining to progress and results of operations.

By way of summary, it may be said that the third period of cooperative cotton marketing had these characteristics:

1. The creation of a super-centralized cotton cooperative in the form of ACCA under the sponsorship of and with the financial backing of the Federal Farm Board.
2. The combining of farmers cooperative cotton business with government cotton operations under the same general management and with the use of the same personnel and equipment.
3. The final passing of the seasonal pool method of cooperative cotton marketing and the substitution therefor of the immediate fixation plan.
4. The operation of a Southwide pool for individual account of member associations for two years, and subsequently the Purchase and Sales Plan for general account of all affiliated associations and all producer members on a Southwide unit basis.
5. The amendment to the by-laws to provide payment of 50 percent of annual savings to members on a patronage basis.
6. The loaning of government money to state and regional associations for purchase of preferred stock in ACCA, or for reloaning to ACCA, as compared to direct loans to ACCA for capital purposes.
7. The elimination of sentimentalism in cooperative cotton marketing and the emphasizing and application of hard business principles—the placing of less and less emphasis on membership and more and more on volume. In the last year or two, however, the pendulum is beginning to swing back and more thought is now being given the members' place and responsibility in cooperative marketing.

The three chronological periods set forth give us some insight into the future and, enable us to realize more definitely the direction in which we are going and to visualize the road over which the movement must travel. Looking at the three periods, as a whole, 1921-22 to 1936-37, a span of 15 years, it is possible to discern certain definite trends. First, the requirements of membership have been made more and more liberal. Starting with an ironclad legally enforcible marketing agreement, the pendulum has swung to the point where patronage virtually constitutes membership. The member may deliver one or more bales, or, in

some cases, no cotton, whereas, originally, he was obligated to deliver his entire crop and also any cotton that he might acquire as landlord.

Second, membership participation in financial responsibility has undergone a change equally as complete as the member's legal obligation to deliver his cotton. During the seasonal pool and optional pool periods, he helped finance the marketing operations in addition to membership reserves by leaving with the Association 25 to 35 percent of the value of the cotton. Under the immediate fixation plan, the average member leaves no equity whatsoever. Of course, after a profit is realized and 50 percent has been allocated to surplus, the member has an equity therein which contributes to the capital necessary to finance his immediate fixation cotton.

Third, the trend has been definitely toward greater and greater centralization of functions and policy making. Until 1929 state and regional associations were autonomous units cooperating with each other on a voluntary basis through the mutually owned and controlled American Cotton Growers Exchange. Following the 16¢ loan settlement in April 1930, which left the associations financially destitute, the cooperatives organized the ACCA under the financial sponsorship of the Federal Farm Board, as already outlined. The ACCA represents the acme of centralization. Its member associations are of the centralized type so it can be seen how distant the operation is removed from the producer member.

Fourth, the growth in use of the immedate fixation plan, together with a centralization of functions have tended to reduce membership interest in the operating phases of cooperative cotton marketing. With the full market price advanced to him at time of delivery and no conscious realization of equities at risk in the operation, the average member is satisfied to let nature take its course. And, with the delegation by state directors of all functions and responsibilities to the American Cotton Cooperative Association, many of them, too, are willing to take the line of least resistance. It may be reasoned that these directors still have an important responsibility in keeping their constituents informed and in talking cooperative marketing at every opportunity. The answer to this argument is that they have little factual information from headquarters to pass along and, as for talking the virtues of cooperative marketing, they quit this in some sections a long time ago and are now waiting for tangible results of business success on which to base a new start.

Fifth, an efficient overhead sales organization has been widely recognized as an economic necessity in cooperative cotton marketing. Such an organization is of more value to some member cooperatives, however, than to others. It can be of greater value to a particular cooperative in some years than in others. But it is an accepted fact that there must be effective cooperation between cooperatives handling the same commodity.

In conclusion, it appears to me that there are ahead of us two possible paths, one of which cooperative cotton marketing must choose in charting its future development. The first path leads to further centralization through an amended organization set-up. The second path leads to a gradual decentralization of functions and responsibilities and ultimate producer ownership and control. Whichever path is chosen, the American Cotton Cooperative Association and the Central Bank for Cooperatives must assume the responsibility for leadership.

By taking the first path, complete recognition and responsibility could be given the ACCA in a more direct and simple manner than at present. The Charter and by-laws of ACCA could be amended to provide direct producer membership in ACCA; state and regional associations could be dissolved and branch assembling offices of ACCA created in their stead, but more along commodity lines than geographical or state lines; advisory committeees could be appointed for branch assembling offices; and a plan of electing directors of ACCA by geographical districts could be worked out. Such a plan would be more direct than the present set-up. The expense of unnecessary boards of directors could be eliminated and all questions as to the rights and prerogatives of state and regional associations versus the ACCA would be settled. All questions as to where ACCA responsibility ends and the member association responsibility begins could be forever answered. Managers of branch assembling offices could have but one master, whereas, theoretically, they now have two. The operating budgets could be prepared entirely and finally by ACCA. The amount of cotton desired from certain areas could be controlled absolutely by ACCA —pressure from over-enthusiastic managers to get volume for volume's sake could be reduced. All in all it would be a much simplified operation.

The second path could lead in the direction of member association autonomy and could seek to create sound incentives for operating success on the part of association managements and directorates. It could proceed on the theory that functions and

services which can be performed more efficiently and economically at home should not be performed elsewhere. It could give full and definite credit to those associations which, because of special conditions or unusual opportunities, can operate at very low costs per bale. It would not penalize one association, the members of which through a sense of loyalty and belief in cooperative marketing accept advances below fair competitive values; but could penalize an association whose members habitually haggle for the last penny of competitive value before delivering. It could stimulate greater membership interest and participation in the business of cooperative selling.

The second path would not lead to ruthless competition between state and regional associations as some opponents might contend. It could lead, however, to greater freedom of opportunity in the sale of cotton by member associations. If a particular association could market its cotton to better advantage direct to mills or through other channels, it could be granted this privilege. It could be provided, however, that a reasonable service or maintenance charge would be paid on cotton not sold through the overhead organization. A fair plan of allocating mill and export sales to member associations at the time they are made could be worked out, or cotton could be sold to the overhead organization by member associations upon mutually satisfactory terms at time of receipt, or from stock, as conditions might determine. Cotton acquired by the overhead organization in this manner could be merchandized on a cooperative basis.

By following the second path, a plan of operation could be found which could be adapted to the varying marketing needs of the producers of different areas throughout the cotton belt. Instead of rigid uniformity there could be ample flexibility. The details of all transactions in which a particular association is interested could be known to the manager and directors of that association. The work of the overhead could be subject to check and review by its member associations and both the overhead and its members could urge each other forward to greater results. Each could achieve in its own name and for its own members while, at the same time, cooperating with others engaged in similar work.

As previously stated, the responsibility for leadership along either of these paths rests with American Cotton Cooperative Association and the Central Bank for Cooperatives—the American Cotton Cooperative Association because of its strategic posi-

tion in the cooperative cotton picture today, and the Central Bank because it must furnish a substantial part of the capital funds required. Which path should they choose?

THE FUTURE OF COOPERATIVE PURCHASING OF FARM SUPPLIES IN THE SOUTH

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There is no general region in the United States where a smaller percentage of farmers engage in cooperative purchasing than in the South. However, there is good reason to believe that within the next ten years there will be a considerable development of cooperative purchasing in this area.

In order to understand the development of cooperative purchasing by farmers in the South, it is necessary to first realize that the South is a region[1] where agricultural conditions differ considerably from agricultural conditions in other parts of the United States. For that reason, I wish to call attention to a few outstanding characteristics of southern agriculture which either directly or indirectly influence the development of cooperative associations and particularly cooperative purchasing associations.

1. *The agriculture of the South is characterized by the large number of small farm operators.* Of the 6,812,350 farm operators in the United States, according to the 1935 Agricultural Census, 2,547,952, or 37.4 percent, were located in the 11 southern states. However, the average size of a farm in the South was only 74 acres, while in the other states it was 203 acres.[2]

2. *The agriculture of the South is characterized by an average small cash farm income.* The average cash farm income in the 11 southern states in 1935 amounted to $462, while the average cash farm income for the other 37 states amounted to $1,189. The total cash income of farmers in the southern states represented only 18.8 percent of the total cash farm income for the nation.

3. *The agriculture of the South is characterized by a small average investment in land, buildings, livestock, and equipment.*

[1] In this paper the term "South" refers to the States of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, and Kentucky. These states have been grouped together by Howard W. Odum under the term "Southeastern states" in his comprehensive work, "Southern Regions of the United States."

[2] The size of the average farm, according to the Census, does not give an accurate picture of the situation, since 621,000 share-cropper farms, which averaged only 37.5 acres, were included. If share-cropper farms were omitted, the average would be 85.7 acres.

According to the Census, the total value of farm land, farm buildings, livestock, and farm implements in the 11 southern states amounted to $7,923,020,890, as compared with a total value in the other 37 states of $49,322,523,379. In other words, the 11 southern states represented only 13.8 percent of the total value of farm land, farm buildings, livestock, and farm implements in the United States. The average value per farm of farm land, farm buildings, livestock, and farm implements for the 11 southern states was $3,317, while the average value per farm for the other 37 states was $12,647. The value of land and buildings per farm was $2,818 in the southern states and $10,551 in the nonsouthern states. The average value per farm of livestock in the southern states was $343, as compared with $1,345 in the nonsouthern states. The average value per farm of implements in the southern states was $156, as compared with $751 in the nonsouthern states. These figures indicate that the average farm in the South represents a much smaller business investment than the average farm in the rest of the United States.

4. *The agriculture of the South is characterized by the production of specialty cash crops.* Throughout most of the area, cotton still occupies the dominant role in the farm economy. Furthermore, tobacco, fruit, and truck crops are also largely produced on a specialty cash crop basis. While there are a number of areas where diversified farming is practiced, such areas are more the exception than the rule.

5. *The agriculture of the South is characterized by a small average production of livestock and livestock products.* In 1935 only 24.8 percent of the average farm cash income in the 11 southern states was derived from livestock, while 69.1 percent of the average cash income of farmers in the rest of the United States was derived from this source.

6. *The agriculture of the South is characterized by a large amount of worn-out and eroded land.* The emphasis given to the production of cash crops with the absence of livestock products has been largely responsible for this condition.

7. *The agriculture of the South is characterized by a high proportion of tenant farmers.* According to the 1935 Agricultural Census, 53.9 percent of the farmers in the 11 southern states were tenant farmers, as compared with 35 percent of the farmers in the other 37 states. Furthermore, 45.3 percent of the tenant farmers in the South were cropper tenants, or tenants owning little, if any, equipment for farming, while in the rest of the United States only 6.4 percent of the tenants were

cropper tenants and many of these were located in Texas and Oklahoma.

8. *The agriculture of the South is characterized by a large number of negro farm operators.* 28.2 percent of the farm operators in the South were negroes, while negroes represented only 3.2 percent of the farm operators in the other 37 states.

9. *The agriculture of the South is characterized by a high rural illiteracy rate.* According to the 1930 Census, 15.1 percent of the rural population in the 11 southern states over 21 years of age was illiterate; whereas only 4 percent of the rural population in the other 37 states was illiterate. Of the total illiterate rural population in the United States over 21 years of age, 61.8 percent was located in the 11 southern states. The high southern rural illiteracy rate is partly accounted for by the high percentage of illiteracy among negroes, which was 31.8 percent, as compared with 8 percent for the white rural population.

10. *The agriculture of the South is characterized by a merchant and landlord system of financing crop production which not only increases the farmers' costs of production, but also keeps many farmers in a state of dependence.*

Most of the characteristics of southern agriculture which have been enumerated, such as the large number of small farmers, the average small income and small investment per farm, the division of the rural population into two races, the high illiteracy rate, and the prevailing merchant credit system, indicate that there are more difficulties in developing cooperative purchasing in the South than in other parts of the United States.

Farm Supply Expenditures in the Southern States. In general, the heaviest single supply expenditure of southern farmers is for fertilizer, since the production of cotton, tobacco, and truck crops requires the use of fertilizer in considerable quantities. The value of fertilizer consumed in these 11 southern states in 1929 amounting to $161,163,239, represented approximately 60 percent of the total value of fertilizer used in the United States. The four states of North Carolina, South Carolina, Georgia, and Alabama accounted for 39.2 percent of the total fertilizer consumed in the United States. In these states the average value of fertilizer used per reporting farm amounted to $133 and 84.1 percent of all the farms used fertilizer. These figures would tend to indicate that the South affords an especially favorable field for the cooperative purchasing of fertilizer.

A study of the situation indicates that the opportunity for the cooperative purchase of feed, petroleum products, implements,

and machinery in the South is less than in other parts of the United States, since a smaller percentage of the farmers in the southern states purchase such supplies and since the average amount purchased by those who do purchase supplies is considerably less than in the other 37 states. With the increasing diversification of southern agriculture which has been the tendency in recent years, farmers' expenditures for such supplies will no doubt tend to expand.

a. *Retarding Factors*

1. Low educational standards of the rural population.
2. Shortage of men with training and experience for managing cooperatives.
3. Shortage of well-informed agricultural leaders.
4. Weakness of many existing cooperative associations in organization structure and in operating methods.
5. Inadequate capital and financial program of many existing associations.
6. Slowness of farmers in freeing themselves from traditions, habits, and customs.
7. Suspicious attitude of many farmers due to past cooperative failures.
8. Domination of tenants by landlord and other interests who feel that they have a "vested right" to control operations of "their tenants."
9. Stiff competition offered by local dealers who will go to any lengths to keep cooperatives from getting a foothold.
10. Influence of credit merchants, fertilizer salesmen, cotton buyers, and allied "servants" of the farmer, and their kin folk, which is directed against any change which might injure their economic and social position.
11. Monopolistic position of certain corporations in the handling of certain farm supplies restricts source of supplies to cooperatives.
12. Inability of many farmers to borrow money so that they can pay cash for supplies.
13. The prevalence of cash crop production and consequent lack of diversified farming makes it difficult to handle farm supplies on a year around basis.
14. Low incomes per farmer forces cooperatives to render a great amount of service in making a large number of small sales with a resulting increase in costs and a decrease in savings.
15. Lack of enforcement of laws designed to protect farmer against fraudulent goods makes it difficult to establish a quality program.
16. Cautiousness of state agricultural agencies in giving support to a cooperative program.
17. Difficulties involved in keeping relatives of manager off boards of directors, etc., due to strong family relationships in South.
18. Division of population into two races involves a special problem of member relationship.
19. Ability of cooperatives to reduce margins has tended to weaken the demand for cooperatives.

20. Shiftlessness and "do-it-alone" spirit of many farmers due to environment, conditions of crop production, etc.
21. Absence of cooperative marketing agencies which causes farmer to buy supplies from dealers who market his products.
22. Speculative attitude of many farmers who always believe that cotton prices will be better next year, so why worry about a small gain from more efficient buying.

b. *Favorable Factors*

1. The rural population is making general educational progress.
2. Agricultural colleges and other state agricultural agencies are gaining a better understanding and appreciation of cooperation.
3. Active encouragement of Federal Governmental agencies, such as F.C.A. and U.S.D.A. is causing local leaders to take a more sympathetic interest in cooperation.
4. Wide margins and high merchant credit terms on farm supplies offer a constant inducement to cooperative action.
5. Public spirited people are coming to realize that cooperation is a way for solving many of the South's economic and social problems.
6. An increasing number of college and vocational high school students are being indoctrinated with the philosophy of cooperation.
7. The continuous progress of existing cooperatives in methods of organization and operating efficiency is providing patterns for sound expansion.
8. The development of cooperative production credit agencies is loosening the grip of the credit merchant by providing farmers with an economical means of borrowing funds for buying supplies.
9. The success of cooperative purchasing in other parts of the United States encourages the development of such activity in the South.
10. The improvement of marketing cooperatives removes a general criticism that farmers cannot cooperate.
11. The wide publicity that cooperation is getting is encouraging more study and understanding of its possibilities and limitations.
12. The AAA and Soil Conservation programs, etc. have given farmers training in working together that will benefit other types of cooperative effort.
13. The banks for cooperatives are providing a source of facility and operating capital at reasonable rates of interest, and technical assistance in connection with their lending services.
14. The sociability of southern farmers makes them enjoy group action.
15. The increasing number of successful purchasing associations is demonstrating the possibilities of saving, improvement of quality and better service through cooperative action.
16. The progress that has been made in coordinating programs of cooperative marketing, purchasing, and credit.
17. County agents and vocational teachers are becoming better qualified to assist farmers in cooperative action in an advisory way.
18. General farm organizations are giving encouragement to cooperative action of all types.
19. Experiment station and other agricultural college workers are encouraging the use of higher quality supplies adapted to farm needs.

20. An increasing number of cooperatives are being set up to meet the particular needs of southern farmers rather than to use patterns which are designed to work in other areas under other conditions.
21. The probability that a federal tenancy program which will increase independence of farm population will be developed.

Factors Which Retard or Favor the Development of Cooperative Purchasing in the South

This enumeration of factors which tend to retard or favor the development of cooperative purchasing in the South raises the question of whether the favorable factors can overcome the retarding factors. In my judgment there is no question of the final outcome, for many of the favorable factors are rooted so deep that they cannot fail to grow in significance, and as they grow in significance the retarding factors will lose their present importance.

PRODUCTION CREDIT[1]

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Certain conditions inherent in the production credit set-up make for a good deal of what farmers call "red tape." Most associations serve a considerable area and cannot have the intimate contact with all of the farmers in their territory that the community banker has. Moreover, the association must deal with a discount bank, the Federal Intermediate Credit Bank, entirely by mail. Hence at the simplest an elaborate system of applications, financial statements and inspection reports must be used in order to have a complete and checked picture on paper. The production credit system has also been built up on secured credit and in the corn belt states the better class of farmers has been accustomed to doing business on an unsecured basis. Operating over wide areas which include many varying conditions it is difficult for the district institutions not to establish rules and practices which do not fit all the local conditions. They simply do not know all these conditions. With the multiple control over the system it is also possible for officials in the Farm Credit Administration in Washington to insist on some practice which does not fit a local situation. There is, however, not much of that as a great deal of local autonomy is given to the various districts.

In spite of the inherent difficulties much progress has been made and a great deal of simplification has been introduced. The greatest single step was taken when associations were given cash loan funds and authority to use them in making loans to farmers prior to acceptance by the discounting bank. The use of the loan funds go back to 1934 although the extent of their use has varied greatly between districts and associations.

In order to check up on the views of the associations on the subject of requirements some simple questions were asked of all secretaries in four states: Indiana, Illinois, Iowa and Wisconsin. These states happen to be divided between the four Farm Credit Administration districts, Louisville, St. Louis, Omaha and St. Paul, respectively. The questions were as follows:

(1) Are there any regulations or practices followed in connection with production credit association loans at this time that make it impossible

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by W. G. Murray.

for your association to make loans to farmers who are good credit risks?

(1a) If so, what are they?

(2) Are there any technical practices or procedures in connection with production credit association loans to which borrowers who are good credit risks have serious objections?

(2a) If so, what are they?

These questions were sent to the Illinois associations by the President of the Production Credit Corporation of St. Louis and copies of the replies furnished to the writer. The questions were sent directly to the associations in the other three states by the writer.[2]

Sixty-three replies were received in time to be tabulated; this represented 90 percent of the general-purpose associations in the four states. It should be noted that the questions referred to farmers who were good credit risks in order to eliminate the confusion which would be involved if poor credit risks were brought into the question.

In answer to question 1; 43 percent of the association secretaries answered "yes," i.e., there were difficulties. In percentage of affirmative answers the states ranked as follows: Iowa, Indiana, Illinois, Wisconsin. Only 20 percent of the Wisconsin secretaries answered this question in the affirmative.

In answer to question 2; 66 percent of the associations answered "yes," i.e., there were objections on the part of farmers who were good credit risks. Here the rank in affirmative replies was Indiana, Illinois, Iowa and Wisconsin. In Wisconsin the secretaries were just evenly divided on this question.

An opinion expressed from all states in answer to question 1a was that more latitude should be given to local associations which recognize local differences. This was mentioned by five of the replies from Illinois. One secretary, not in Illinois, put the matter this way: "In other words, it is our opinion (that of Secretary and Board of Directors) that there should be a value placed on the number of years of credit record that is built up by doing business through the association, and that credit (for a good record) be given to a greater extent than it seemingly is under the present condition."

Naturally more items were noted in reply to question 2a, objections raised by borrowers who were good credit risks, than to question 1a, reasons why loans could not be made to such bor-

[2] The author hereby thanks the various PCA secretary-treasurers who answered this inquiry, and also Mr. F. W. Niemeyer, President, PCC of St. Louis, Mr. Walter Gahm, President, PCC of Louisville, Mr. E. R. Heaton, President, PCC of Omaha, Mr. George Susens, President, PCC of St. Paul and Mr. C. R. Arnold, Deputy Production Credit Commissioner, Washington, D.C., for cooperation given in connection with the survey.

rowers. In some cases a secretary perhaps reported his personal reaction rather than his idea of borrower's opinions. More associations mentioned objections to the matter of application of proceeds and releases than to any other point.

It may be well to consider what are common items in the answers from the various districts.

1. Chattel mortgage and/or limitations on secured loans were mentioned by associations in all four states. If this criticism is valid the remedy is obvious: Greater use of unsecured loans to borrowers who have good financial statements or who have established an excellent reputation with associations. A system of establishing such a preferred list with maximum individual lines of credit ought to be worked out for every association in the corn belt states. This would eliminate a number of the other problems mentioned.

2. Inspection on renewals. This is mentioned in all four states in answer to one or the other question. Consideration could well be given to preferential treatment in this respect to borrowers who have established good records. There is no question that the better class of farmers object to the frequent checks to which they are now subjected. Inspections for advances where borrowers have established good reputations can be similarly handled.

3. Matters in relation to releases and advances were mentioned in all districts. It is interesting to note that an association in Wisconsin says that the new practice of requiring all proceeds applied will cause complaints. The only reference in Iowa was that "releases take too long." Certain of the Illinois and Indiana associations stated that farmers prefer releases to additional advances. There is no question that the attempt to apply a system of additional advances rather than partial releases of proceeds when payments were made on crop, general purpose, and livestock loans in the corn belt states has led to criticism of production credit procedure, particularly by borrowers who were not close enough to association offices to get complete explanation. It is recognized of course that one who releases proceeds of mortgage property must satisfy himself with respect to junior creditors.

Up to this point the writer has acted as a reporter summarizing the views of the various associations as reported by their secretaries. He would like to make the following suggestions:

1. More attention should be given to the recommendations and the endorsement of the individual association with a good

record and less to how the individual items offered for discount meet "rule-of-thumb" requirements. It would be desirable if all the elaborate rules and regulations issued by the Farm Credit Administration regarding credit practices of Production Credit Associations were cancelled and a simple statement issued somewhat as follows: "Association can make loans adapted to the credit needs of the farmers in their territory who have a farm set-up, accumulated capital and reputation which justify the loan and who have sufficient income from sale of farm products to pay off the loan within a reasonable period. General rules shall be established by the Boards of Directors of the associations in cooperation with the Federal Intermediate Credit Bank and Production Credit Corporation of the district." The original detailed rules were advantageous for educational purposes in the formative stage but that is now passed. In the same direction the practices of the Examination Division of the Farm Credit Administration in connection with Federal Intermediate Credit Bank examinations ought to be changed so as to check the general nature of the dealings of an association with the bank rather an examination of individual loans. Such a policy would be more in line with the theory underlying the organization of the system.

One advantage of the procedure of having associations participate in formulating rules would be that they would know what they were. The summary of the replies from the associations was reviewed with two operating officials of the production credit system who were familiar with practices in two separate districts. Both stated when commenting on some point, "The rules do not require that." This illustrates how difficult it is for busy association officers to keep up-to-date with various changes.

2. At regular intervals, at least once each year, the procedures followed should be reviewed by each association and the corporation and the bank. In connection with such checks actual loan experience, borrower's reactions and likely trends in income conditions should be considered. Where a practice can be changed or simplified without increasing the hazard from a practical standpoint, it should be done. This would tend to reduce the tendency toward "rule of thumb" practices which inevitably tend to creep into large organizations. In some districts there has undoubtedly been too much rigidity and too much of an attitude that unless loans were made in a certain way they would not be good. The low losses sustained by associations to date

indicate that the requirements have not been too lax. In fact, if the system is to be criticized it is that it has failed to recognize the trends of farm income from 1932 to date and set too high standards for borrowers to meet, particularly in farming districts with high incomes.

E. C. Johnson
University of Minnesota

Production credit associations are organized as cooperative credit associations to make short term loans to farmers for agricultural production. In their plan of organization and in their operations definite cooperative principles are followed. In the first place their function is to be of service to farmer members by supplying adequate credit on a sound basis at the lowest possible cost. Second, they follow the democratic principle of one man one vote, common to cooperative associations. Thus regardless of the amount of stock held by a member he has only one vote at meetings of stockholders. Third, each borrower must be a stockholder and thereby assume a financial responsibility in the association. For every one hundred dollars of loan or fraction thereof, the borrower must own Class B stock (voting stock) in an amount of $5 at fair book value but not exceeding the par value of $5 per share. In the discounting of farmers' loans at the Federal Intermediate Credit Bank, the association indorses the notes and assumes a liability for payment. The capital of the association, therefore, supports the farmers' notes. A production credit association provides the means for farmers to cooperate to obtain funds for loans from the investment markets through the Federal Intermediate Credit Banks. Without the associations many agricultural communities would be unable to obtain adequate capital for farm operations.

If production credit associations are to continue as permanent cooperative credit institutions, they must perform a credit service which farmers recognize to be of definite economic value. The associations supplement other credit agencies and provide production credit during periods of depression as well as prosperity. They have a definite place for experience has shown that banks during periods of depression were not in a position to provide adequate credit for farmers. However, at present with business conditions greatly improved, banks in most agricultural communities are increasing loans to farmers, and it will be

more difficult for production credit associations from now on to demonstrate to farmers that they can be of service. The farmer who obtained necessary production loans from associations during the period of emergency when banks or other agencies could not supply this credit no doubt recognizes the value of being a member of a cooperative credit association and will support the program.

Close contact with members is a factor essential to success in cooperative organizations and the production credit association is no exception to this rule. It has been said that in contrast with cooperative marketing and purchasing associations where the member contacts his association by delivery of products or purchase of supplies several times during the year, the production credit association has difficulty maintaining the interest of the member because he has contact with his association only when he applies for a loan and perhaps when he makes payment. This need not be the case however because an active production credit association can provide information for farmers on agricultural problems as well as aid in the solution of credit problems and thereby attract the farmer to the office several times during the year. The annual meeting of stockholders, if planned as an interesting and instructive meeting, may attract a large number of members and offers an excellent opportunity for acquainting the member relative to the purpose of the association and his responsibilities in establishing it on a permanent basis. The Production Credit Division at Washington and the Production Credit Corporations are doing excellent work in assisting the associations with plans for successful annual meetings.

The need for more educational work among members and nonmembers of associations is very apparent. A large share of the farmers are not aware of the existence of production credit associations and this group includes many of the more successful farmers, the type of farmers needed as members if the associations are to be established as successful cooperatives. Also among the better farmers we find those who think of the production credit associations as government emergency institutions and therefore are not interested in becoming members.

Ownership of a major share of the capital of production credit associations by farmers would seem necessary in the long run if they are to function as cooperative associations. At present the associations operate under a public subsidy in the form of stock ownership by the government without cost to the associations.

This capital is provided by the investment in Class A stock of associations by the Production Credit Corporations and is kept invested in high grade securities with the return accruing to the associations.

Farmers who are Class B stockholders but have not borrowed from the association for a period of two years must, according to the law, exchange their Class B stock for Class A stock. This means that they must surrender common stock which carries voting power for a stock without voting power and still not preferred as to dividends. The advantage of this requirement is that the control of the association is left in the hands of the farmers who use the association. It is desirable to have any cooperative owned and controlled by the active members who use the organization but on the other hand this requirement of exchange of stock may make it more difficult to reach a status where farmers own a major share of the stock of production credit associations. Farmers are reluctant to surrender Class B stock for a nonvoting stock and rather than doing so will prefer to offer their stock for sale and retire from the association. Particularly will this be true until the association reaches the stage where dividends can be paid. Therefore, it seems that it may be wise to amend the law and provide for exchange of stock if the stockholder has not been a borrower for a period of five years instead of two years as now provided. Most farmers need to borrow operating capital some years and are likely to use the association within five years. Such an amendment will not prevent control from remaining in the hands of borrowers in most associations and may make it easier to obtain ownership by farmers of a major part of the stock.

Under a truly cooperative production credit system the farmers themselves determine policies to be followed by associations and have much to gain by assuming such responsibility. At present this responsibility is divided between the farmer members and the 12 Production Credit Corporations which supervise the associations in their respective districts. Such an arrangement is necessary as long as the government has a large investment of capital in the associations and this arrangement is not a weakness in the program of developing a cooperative credit system but instead may be an element of strength in such a program. Farmers lacked the experience and training necessary to establish credit institutions on a sound basis and needed the guidance given by the production credit corporations. The corporations

seem to be placing more responsibility in the hands of the farmers as time goes on and at present the responsibility for management of associations rests largely with association directors. Association directors being farmers and in close touch with farm problems can contribute a great deal to the sound use of credit by farmers and through cooperation between them and the officials of Production Credit Corporations and Federal Intermediate Credit Banks it should be possible to maintain a sound credit policy which is sufficiently flexible to meet the needs of farmers.

It is dangerous to attempt to forecast the future of the production credit system but it appears that there are two lines of development which it may take. The association may operate on a semi-cooperative basis, subsidized by government capital and supervised by the government. In such position they would serve a useful purpose by setting standards of practice in short-term credit to farmers which private agencies would tend to follow to a certain degree at least. Also they would be available if an emergency should again arise when solvent farmers could not obtain the credit from banks and other private agencies necessary to carry on farm operations during a period of strain. In this role they will provide only a small part of the production credit used by farmers. On the other hand they may compete in an aggressive manner with private enterprise and develop into strong cooperative credit associations under government guidance but with farmers assuming major responsibility for their activities and with government capital subsidy held at a minimum. In such a role they will hold a commanding position in short-term credit to farmers both in periods of prosperity and depression, and will take an active part in directing the flow of capital into the hands of farmers for production. Which of these lines the production credit systems will follow will depend largely upon the attitude of the farmer and the decisions of those in authority who are responsible for the direction of the system.

C. R. Arnold
Farm Credit Administration

In discussing agricultural credit with this group it is not necessary to devote any large amount of time to a presentation of facts regarding the reasons for the organization of a production credit system in the United States. It is sufficient to say that

the credit needs of agricultural producers could not be properly served by a system of 60 to 90 day loans, generally available only in times of business prosperity and made on a basis of collateral security rather than ability to repay. Under such conditions many farmers who need credit for farm operations either are unable to properly plan their business or they turn to the use of expensive types of credit.

If the objective of the production credit system were to serve only those farmers whose present liquid collateral was sufficient to fully secure their loans, there would have been less need for the system. Only a small part of the American farmers who need and can profitably use short term credit can seek it on this basis. The large number of crop producers or general farmers whose products financed are required to be sold to liquidate the loan find their primary security either not in saleable condition or even not yet in existence at the time the loan is made.

In order to give proper short-term credit service to a large percentage of the deserving farmers, more credit information is required than is necessary either for those agencies which limit their service to those with an abundance of liquid collateral or for those small loan companies who charge rates sufficiently high to cover losses, ranging in some instances from 2½ to 3 percent per month. This additional credit information has resulted in the use of questions and forms. Much of this information is necessary for a sound and efficient credit system, but, at the same time, there is danger of going too far and securing unnecessary information especially on repeat borrowers with good repayment records.

The production credit program of the Farm Credit Administration is an attempt to develop a sound cooperative short term credit service suited to the needs of farmers who should have it, and available to them at the lowest possible cost consistent with good business practice. It is an attempt to assist farmers in building their own cooperative credit organization founded on a basis of dependability so that credit will be available in times of financial stress as well as business prosperity. Through these associations loans are based upon needs and repaying ability of producers rather than purely upon their financial statements. The extension of credit to individuals who have security but no opportunity to make a financial gain through the manner in which their operations are conducted is not, in my opinion, extending sound credit. Loans secured by sufficient basic collateral

which could be sold at any time for the payment of the loan may be entirely safe. However, to me there is a definite distinction between short-term agriculture loans which are safe and those which are sound. Any loan which must be repaid through the sale of necessary farm operating equipment or collateral may be safe from the standpoint of the creditor, but entirely unsound from the standpoint of the borrower. The ability and record of the individual, although intangible, is one of the greatest factors of security.

Many loans are made on a budget basis. This means making advances to the farmer at different seasons of the year to cover current costs, and requiring repayments at different times depending upon the date farm income is received. Farmers pay interest only for the time the money is used, and with establishment of a line of credit plans can be made for the year's operation with rather definite assurance that this money is available.

The cost to borrowers of short-term loans through production credit associations depends upon the wholesale price of money or that at which the Federal Intermediate Credit Bank debentures can be sold and also upon the efficiency of the local association. During the past two years Federal Intermediate Credit Bank debentures have been sold to yield around 1 percent. Loans of the local associations have been discounted at the Intermediate at 2 percent and the money loaned to farmers at 5 percent. This allows a 1 percent spread for the operations of the Federal Intermediate Credit Banks, and a 3 percent spread to cover the cost of operating the association. Additional costs for recording fees, title searches and inspection charges must be paid by the borrowers inasmuch as the 3 percent interest spread allowed the associations does not cover all of these extra costs and court costs. A typical loan of $800 running for nine months costs the borrower around $37 to $38, of which $30 is interest and the remainder covers inspection, searching titles, and recording of the mortgage. Any profits are devoted to building adequate reserves in the association before the payment of dividends to stockholders. It is entirely possible that interest rates paid by farmers under this plan would be as low or lower during periods of financial stress because of the tendency for investments to be placed in safe short-term securities during such times. In any case, it allows farmers to build their own credit machinery with its dependable supply of funds.

One of the main objectives of the production credit system

is assisting in the establishment of local responsibility and management. No loan can be made through a production credit association unless it is first approved by the executive committee of the local association. This committee is a part of the local board of directors elected by the farmer stockholders. As every short-term agricultural loan is an individual problem, and as certain factors affecting them are intangible and cannot be fully described on paper, the work of this local committee is important. In order to give proper credit service to farmers the lending institution, therefore, must be familiar, through its employees and representatives, with all factors surrounding the individual and his farm business. Every borrower is a stockholder and losses must first be borne by these stockholders to the extent of their stock. The success of the association and the security of the stockholders require that only sound loans be made.

At present there are 553 local production credit associations which cover every part of the United States and the island of Puerto Rico. The area included in an association territory varies from 1 to 8 or 10 counties, depending somewhat on the intensity of the agriculture. Including enough territory to insure sufficient volume to cover operating expenses and still maintain local and convenient service to borrowers has been a major problem. This is being partially met through the establishment of local representative offices in counties away from the headquarters with the representatives in charge capable of taking applications, making inspections, making collections and carrying out other assignments of the associations. At present there are approximately 150 of these local representatives on a full-time salary basis and generally covering one county.

All associations now have a cash loan fund from which loan disbursements can be made directly to borrowers without requiring them to wait until it is discounted with the Federal Intermediate Credit Bank.

During the three years since the production credit associations were organized approximately 600,000 loans, amounting to slightly more than $500,000,000 have been made. More than 40 percent of this amount was loaned during 1936, and the average volume per association this past year was around $360,000. Loans average about $800 each. During the first two years, and until the organization was completed and some volume was built on the books, associations generally did not meet their operating expenses from their income from borrowing members, the differ-

ence being taken from the interest income on the Class A capital stock. A considerable number have not yet reached that goal, but every association is strictly a business organization, operating on a budget toward the objective of operating well within the income from member borrowers, and building suitable reserves for the future.

Short-term agricultural credit will be supplied to farmers by whatever agency can best serve their needs over a period of years. At present there are approximately 250,000 member stockholders of these associtions who own about 1.4 percent of the total capital. During the past year each association held an annual stockholders' meeting, the total attendance at these meetings being approximately 90,000. To me, this gives some indication of the interest which farmers have in building their own credit institution.

Most production credit associations are now about three years old. During this time much effort has been devoted to establishing proper organizations and developing credit men in the associations. Lately much more effort is being given to a refinement of procedure to a practical basis with elimination of unnecessary forms and procedures, at the same time bringing the service closer to the borrowers. In order to properly serve farmers, these associations must be local organizations with a maximum of local responsibility.

It is the purpose of each association to intelligently inform each farmer of the credit service rendered by it, that he may have sufficient information at hand to elect the source from which he can obtain credit best suited to his present and future needs. The production credit program is an attempt to render credit service at the lowest possible cost consistent with sound business, establish a permanent and dependable source of short-term credit, make available prompt, proper and practical credit service—continually striving toward better service through less inconvenience, and a better understanding of credit uses.

Round Table Discussion

Three significant questions were raised in the discussion following the reading of the papers. The first was whether or not a policy of uniform interest rates should prevail in view of the variations in risk involved in loans in different type of farming regions. In this connection loan experience in vegetable areas was considered at length.

The second question dealt with the wide margin now in effect between the interest rate of less than one percent paid for funds by the Federal

Intermediate Credit Banks and five percent interest paid by farmers to the P.C.A. for these funds. If such a wide margin is necessary what will happen when the cost of funds increases from less than one to, say, three percent? In answer to this it was pointed out that for many sections of the country rates charged by the associations are below those to which farmers are accustomed. Economies of operation were pointed out, which when coupled with an increase in loan volume, would lower the cost of operation and make it possible to reduce the margin of the Intermediate Credit Banks and Production Credit Associations.

A third question called for reasons why the P.C.A.'s had reached such a small percentage of the borrowing farmers in the United States. In the discussion, the short period during which the system has been in operation was suggested as one answer. The development of a more efficient service supplementary to the loans was pointed out as a growth determining factor. Finally, the competition from commercial banks during the present period of excess reserves was mentioned as an important reason.

FARM TAXATION[1]

RESEARCH IN MEASURING THE EFFICIENCY OF LOCAL GOVERNMENTS

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We are devoting much research and effort these days toward devising and effecting an adjustment program which will make the most efficient use of our land resources, in order to secure a stable and prosperous agriculture. We are beginning to test our farming practices and organizations on a new basis. Further, we are coming to see that even though the proper sized farm unit and recommended farm practices are fully secured, these alone will not insure the attainment for our goal. We are beginning to appreciate that agricultural adjustment programs must cover many related fields, of which local government is but one.

Inefficient local government often offsets the beneficial effects of excellent farm organization and management, and should, therefore, undergo careful tests of adaptability and efficiency. Our local governments (their structure, administration, and services) are predicated upon a land utilization pattern which has proved itself poorly adapted to the basic natural resources in many areas. It is, therefore, essential, whenever desirable changes are to be effected in the production pattern, that appropriate changes in local government be worked out and effected also.

The Meaning and Measurement of Local Governmental Efficiency

The aim of most research in local government is to determine the size and organization of local units which are "most efficient" in rendering public services to the citizens. But what is meant by the term "efficient"? Efficiency means the ratio of output to input: for example, how much value in terms of services is secured in return for a given expenditure of money in the form of taxes?

This measure of efficiency may have several phases. There is, first of all, the determination of a general index of efficiency for the local governmental organization as a whole, based on the average cost per unit of work done. Let us assume, for example,

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by H. M. Haag.

that the governmental unit comprises six or eight main offices as county government frequently does, and let us also assume for the moment that some composite measure of the amount of work done or services rendered by these offices has been made. Then, by dividing the total expenditures for these offices by the number of units of work done or their services, a cost-per-unit index can be calculated for the governmental unit. These indexes, computed for various counties or cities, make possible a general comparison of efficiency between them, but there are many difficult problems and shortcomings connected with research designed to compute accurately such composite indexes.

Problems Involved in Measuring Governmental Efficiency

Most discussions of governmental efficiency have been confined to expenditure comparisons, and few serious attempts have been made to measure the amount and quality of services rendered by local officers. This is because data showing the amount and quality of services rendered the public are not readily available. The fact that data are not readily available is not a sufficient excuse to forego research along these lines if the data are obtainable through careful analysis and effort. However, many argue that research to determine the quality and amount of services rendered by local officers is of little value at best, because it does not lend itself to scientific procedure, and that, therefore, the agricultural economists and scientific experts have no business meddling with such matters.

Yet, how are we to secure even a rough approximation of the relative efficiency of different offices and forms of local government, or discover the basic factors upon which efficiency and the framework for a desirable reorganization program really depend, if some measure of the amount and quality of services is not devised? We have had ample evidence of the inadequacy of expenditure comparison research. Moreover, the writer believes that there are methods of approximating a measure of relative efficiency for certain offices and local governmental units —methods which are scientific in their approach and at least a beginning in the right direction.

In attempting to compute an index of efficiency for the principal county offices, the writer selected the following six offices which carry the bulk of the administrative work of Montana's 56 counties: (1) clerk and recorder, (2) treasurer, (3) assessor, (4) sheriff, (5) clerk of court, and (6) superintendent of schools. Three principal problems arose in measuring the amount of work

done by these offices: (1) the determination of what services or duties are performed by each of these offices and which are the most important ones; (2) the determination of which of these services could be expressed with reasonable accuracy in numerical or quantitative terms; and (3) the deciding of how much weight or relative influence to give to each duty or service in computing the total number of units of work performed by the office.

The procedure involved in solving the first of these three problems included an analysis of state statutes to discover just what duties were specifically required by law to be performed by each office. Selected county officers were also asked to list their principal duties, and the writer studied six selected counties rather carefully over a period of three years to become familiar with the actual duties of the different offices. The records of these offices were carefully checked to determine which duties could be expressed quantitatively. Waiting on the public, a very important duty of all of the offices, cannot be so expressed, but recording and accounting duties like the number of warrants issued, number of instruments recorded, number of tax receipts issued, and number of assessments made, can be so stated. The writer came to the conclusion that enough of the main duties could be so expressed that, if other problems could be solved, a good measure of the amount of work done by these officers could be computed.

The third problem, namely, deciding on a system of weights for the various duties, was the most difficult to solve. Selected county officers were asked to indicate the approximate amount of time required to perform one unit of each of the various duties. For example, about how long does it take to record an instrument, on the average, or to audit a claim, or to file an instrument? Some of the officers kept a diary or record of the time spent on the various duties over a period of several days, one officer keeping such a diary for several weeks. From this information and first-hand observation, a system of weights was computed and sent to several experienced officers for their criticisms and suggestions. After many changes and much juggling, a weighting system was worked out for each office, which seemed to meet the approval of most of those consulted.

The number of items used as a basis for measuring the amount of work done varied with the different offices because the number of specific duties performed by each varies. In the case of the clerk and recorder office in Montana, which performs some 25 specific duties, 10 of these were found to take most of the time

of the office. These 10 and the weighting which was worked out for each duty on the basis of its relative importance are as follows: (1) number of warrants issued, one-half unit each; (2) number of claims audited, one-half unit each; (3) number of instruments filed, one-eighth unit each; (4) number of instruments recorded, one-half unit each; (5) number of assessments for tax roll extension, one-twentieth unit each; (6) number of funds for which distribution of taxes is made, six units each; (7) number of tax deed titles posted, two units each; (8) number of seed and feed loans, one-half unit each; (9) number of voting precincts, seven units each; and (10) number of registered voters, one-fifteenth unit each. A similar scheme was worked out for the other five offices.[2]

The duties selected for weighting are practically all established and standardized by state statute, in Montana, and the problem of quality is solved to some extent by the close examination and check made each year of these offices by the State Examiner's Office. It cannot be denied, however, that a thorough study of county governmental efficiency should include an analysis of quality based on a score card method of rating, particularly in states where close auditing of records is not performed by state officials.

Application and Use of Research Findings

In the analysis of efficiency of the six county offices mentioned previously, the cost per unit of work varied greatly between counties, the volume of work done and the training and experience of the administrative personnel apparently being very important related factors. It is significant that in the counties with the lowest unit costs, those in charge of the offices had between two and three times the training and experience of the average clerk and recorder.

A very definite relationship was found to exist between the amount of work done and the cost per unit of doing it. However, cost does not decrease in exact proportion to increases in volume of work done or vice versa. At first the unit costs drop rapidly as the volume of work increases, but a point is reached when a greater volume of work does not result in lower unit costs, and, in certain cases, actually results in an increase. Thus the principle of diminishing returns seems to be effective. This tendency

[2] For a detailed analysis of the method and statistical measurements used for each office, see also the author's treatment in Montana Experiment Station Bulletin No. 298, "Montana County Organization, Services, and Costs," April, 1935, and "Measuring the Efficiency of County Government," *National Municipal Review*, Vol. 24, No. 3, March, 1935.

is particularly pronounced in the case of the clerk and recorder and treasurer offices. In each of the other four offices the principle operates to a much smaller degree and in the case of school superintendent and sheriff, it is hardly noticeable. These results indicate that counties can be too big as well as too small, particularly in the case of certain offices. But the important problem is, what size county, on the average, seems to have the volume of work for each of the principal offices to average the lowest composite unit costs for the county as a whole? It was found that in Montana the medium-sized counties had relatively lower unit costs for most of the offices than either the largest or the smallest counties.

Summary and Conclusions

We should think in terms of planning adjustments in our rural governments and their services to make them more efficient and adapted to the basic natural conditions, just as we are learning to appreciate the need of land use planning and adjustments in our farm production patterns. Efficient local governments and a community organization pattern well adapted to basic natural conditions mean lower taxes and consequently lower overhead costs for farmers. But this is not the only benefit to be secured. Better coordinated and centralized local governmental units which characterize efficient and responsible agencies would enable adjustment programs to be adopted more promptly and effectively. It is not a matter of saving a few pennies, but a much larger social problem of helping to reduce the amount of lag in regulating and improving human relations compared with our pace of utilizing inanimate substances and energies. Not until our local governments are made into well planned, responsible administrative units, will we be able in a democratic way to reduce existing maladjustments and human misery to a minimum.

THE FARM REAL ESTATE TAX SERIES OF THE BUREAU OF AGRICULTURAL ECONOMICS

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The Bureau of Agricultural Economics has developed a group of farm real estate tax indexes in accord with certain practical objectives. These series together with a somewhat precise description of data and methods of the Bureau are presented here. Within the period from 1922 through 1932, the Bureau devel-

oped three distinct types of series. Each new one was considered an improvement over the preceding type, resulting in part from the technical experience gained, in part from the changing economic situation of farmers and the consequent intensified need for farm tax information, and in part from the greater availability of data.

From the standpoint of experience, the work of the state colleges and agricultural experiment stations has been helpful. Eight state indexes in published form are listed below. Others probably have been constructed but are unpublished. Of these

STATE INDEXES OF FARM REAL ESTATE TAXES OR FARM PROPERTY TAXES

Year Published	State	Author	Period Covered
1925	Kansas	Eric Englund	1910–1923
1925	Ohio	O. M. Johnson	1881–1924
1926	New York	M. Slade Kenrick	1887–1924
1928	New York	M. Slade Kenrick (Extension of earlier index)	1854–1926
1930	Connecticut	M. Slade Kenrick (With certain years omitted)	1914–1928
1931	New Jersey	Allen G. Waller	1915–1930
1932	Missouri	Conrad H. Hammar	1914–1930
1932	Maryland	W. P. Walker and S. H. DeVault	1911–1932

state series, six are estimated from aggregates of property tax figures for sample local units while only those for New Jersey and Maryland are based on weighted taxes per acre. The agricultural experiment stations in these two states furnished us with the data used in our work. Also we had close personal association with men who constructed the series and agreed very closely as to methods adopted. The regional and national indexes, however, involved problems of weighting not present in the construction of state indexes.

Within the past five years, the Bureau has constructed and published farm real estate tax indexes for each state for the years 1913 to date. Data from which the series for most states may be extended back to 1890 are now being collected and tabulated, so that a 45-year series for most states and geographic divisions and for the United States will be available.

Before the current series were undertaken the Bureau had maintained a national farm real estate tax index for about five years but the need for regional and state indexes became imperative. This called for a re-examination of method and a substantial extension of the sample.

The practical need for these indexes is of two general types: (1) answering of inquiries concerning farm tax conditions and (2) the furtherance of the Bureau's research. The material,

therefore, has a practical use. Furthermore, we have kept in mind that the objectives outlined and the methods of reaching them must be practicable.

The Bureau's pertinent statistical series consist of the following: (1) Estimated average farm real estate taxes per acre levied by states and geographic divisions, annually 1913 to date, weighted by the varying acreage of land in farms and adjusted in level to coincide in 1930 with taxes per acre on all farm land as estimated from census reports for owner-operated farms. Special assessments are omitted so far as practicable. These data are reported both as series of actual taxes per acre and as indexes on a 1913 base; (2) the same series with constant rather than variable weights, the weights being the acreages of land in farms as given by the 1930 census reports; (3) corresponding taxes per $100 of farm real estate values weighted by the varying total values of farm real estate and adjusted to taxes per $100 of value as reported by the census of 1930. In addition, subsidiary series representing total levies of farm taxes are available. For the period prior to 1913, the only series are for taxes per acre and these are not completed in all states. Some difficulty has been experienced in getting the necessary data in the New England and Middle Atlantic states, but even if these cannot be obtained, indexes will be available for the major part of the country.

All three of the types of series are based upon the same primary data and have been obtained by the same or analogous processes, but the tax-per-acre indexes with variable weights are considered basic. The outstanding points in the plans and procedure leading to their development will be outlined. (1) General purpose indexes, though desired, were considered impossible. Thus, the aim was to construct indexes which would be most useful in answering the more important and more frequent farm tax questions. (2) Component series for states and regions were deemed imperative. (3) Although other farm taxes are significant, the indexes were limited to real estate taxes only. (4) The principal series represent unit taxes rather than totals. (5) An area unit rather than a value unit was selected. (6) The data are taxes per acre on each of several farms in each of one-half to two-thirds of the total counties in the country. (7) Tax levies rather than tax payments were taken. (8) The sample in each county was selected by a county taxation officer by request and under instructions from the Bureau. (9) Continuous records on specific farms were used for the most part for the period from

1913 to 1925 (1913 to 1930 in many counties). (10) For years following those for which continuous records were obtained, links to existing series were made and the series extended one or two years at a time. (11) Weights were varied historically in ratio to the area of land in farms. (12) Weights were applied by crop reporting districts, by states and by geographic divisions. (13) The series were adjusted to the census of 1930. (14) For supplementary use and as a check, another set of indexes were constructed with constant weights. (15) For further supplementary uses, series were constructed for taxes per $100 of value. (16) Exceptions to formal methods were made in cases where such departure seemed necessary to obtain trustworthy results.

Each individual farm was considered an independent statistical observation. Since tax per acre was used, each farm had the same weighting. The reports received showed the number of acres and the amount of real estate taxes levied, from which the tax per acre was calculated.

For the indexes, a broad sample as nearly random as possible was desired. In addition, time and cost were important. Also, if state and regional series were to be developed, representativeness by states was necessary. Since property taxes do not show gradual or continuous variations over geographic areas, the sampling problem was difficult. It was considered impossible to get samples from each of more than 3000 counties and nearly 1000 New England towns, and too costly to make a direct selection of 49 state samples through field work. The only feasible method, therefore, was an appeal by correspondence to local taxation officers, who responded better than the men in the Bureau had dared to anticipate.

As a result, the data are for taxes levied and not taxes paid. Since 1929, delinquency has been extensive and must be remembered when using these tax series. The Bureau has collected and summarized rural tax delinquency data for five years in more than 2000 counties but the results have not yet been analyzed in relation to tax levies. Estimates of divergencies between levies and payments should be possible but would require months of study.

The first requests for index data were sent to the local officers in 1930 and 1931. Each was to select from the tax rolls in his county or town 10 farms widely scattered and to report for each farm the acreage and tax levy each year from 1913 to 1925. [Although data from 1926 to date were desirable, it was assumed

that to ask for too long a series would seriously reduce the number of returns. Many officers, however, added the recent years, and later requests called for the complete series of years. Returns from about two-thirds of the counties were received. The size of the sample seemed sufficient. Also, the samples were scattered widely in the states and with relatively few exceptions, each crop reporting district was represented. If properly weighted, these samples would seem to make fairly representative state series; indexes for lesser areas were not intended.]

The plan in omitting the years after 1925 had been to splice on the data already available. Since 1925, voluntary crop reporters had been reporting acreages and taxes paid on their farms. A farm real estate tax index from 1924 to date was constructed from them and was used by the Bureau until replaced by the current series. An even earlier questionnaire to crop reporters had asked for the amount of real estate taxes paid on individual farms in 1913-14 and 1921-22. Although that schedule, or its results, might not now seem satisfactory, it not only obtained useful information but also taught us some of the special requirements of such farm tax inquiries. From these data and other sources, an annual series for total farm property taxes between 1913 and 1924 had been completed.

The samples from crop reporters were fairly satisfactory for a national series but for state series they appeared clearly inadequate. Following 1930, the Bureau series have been extended by adding link relatives to the state series, on the basis of returns which have not represented the identical farms used in the earlier sample. Keeping the series up to date thus represents a problem of quality of sample quite separate from that involved in the original selection.

Although all counties were given a chance of inclusion in the sample, the chances were not even. Size of county, method of paying local taxation officers, type of local government organization, local economic conditions and many other factors might be expected to influence returns. It was decided, however, that the method of selection gave acceptable state samples except, perhaps, for states with few counties where such samples are likely to be less trustworthy.

The largest number of continuous records was for 1925 when 19,220 farms totaling 4,827,700 acres were used. Between 1925 and 1930 there were decidedly fewer records, the largest number being 14,700 in 1930.

[Within an individual county, farms were selected by a county

officer. He was asked to choose widely scattered farms, each representative of its community, and in the majority of cases, he apparently did so. Although the samples did not always represent the average tax levels of the counties, they are believed to give good approximations to the true trends of farm real estate taxes.]

To learn more about the samples and their trustworthiness, frequency distributions of tax per acre for each state sample were arranged. With minor exceptions they proved to be the expected shape. Most state series were skewed to the right, although those in the corn belt were skewed to the left. In California, the distribution was bimodal. The apparent reasonableness of the individual series and the uniformity of regularity among them adds greatly to our confidence in the samples.

In 1925 and 1930 levels of taxes were above corresponding census figures in state after state. Differences were greatest where county officers had the greatest choice in quality of land. In West Virginia, the officers seem to have chosen "valley" farms whereas the Census took also the poor hill farms, and the sample showed higher taxes than the Census. In Kansas, there was little difference. The difference in level was not disturbing as long as the trends could be trusted, but they did show the need for adjusting the levels as computed. The samples were overweighted with high-quality farms, but this did not seem to be a serious defect because there is little reason to believe that the trend of tax per acre should vary with quality. Distribution of the data by quality of farm is not feasible, but distribution by size of farm can be shown. For illustration, the distribution of the 1925 sample for Indiana is compared with the 1925 census distribution of all farms.

Acres in farm	Number of Farms as Percent of Total	
	Census	Sample
Under 3	0	0
3– 9	5	0
10– 19	5	0
20– 49	17	7
50– 99	31	34
100– 174	28	44
175– 259	9	9
260– 499	4	5
500– 4999	1	1
5000 and over	—	0

Also the state trends when compared among themselves are fairly consistent and their divergencies are reasonable. Again, logical gradations in form appear from state to state and from region to region.

Our next problem was that of weighting the samples. Part of our objective was to construct an index of taxes per acre which when applied to the total acreage of farm land would give an estimate of total farm real estate taxes for the year in question. This called for weights representing total area, and for variable weights. Crop land instead of total land in farms was considered as the weight basis but was rejected because it seemed to restrict the use of the series. It is difficult to state and more difficult to interpret for general purposes amounts and relationships of taxes on crop land. Also, total taxes levied against all farm land coincides with total real estate taxes levied against farm owners, which is useful for other purposes.

Taxes per unit of value weighted by value also should yield an estimate of total farm real estate taxes. Also the tax per unit of value is clearly more significant for comparing tax burdens. Taxes per unit of size, however, present the amounts which farmers in general have to pay.

Thus, the acreage of farm land as reported by the census and as given by straight line interpolation between census years was used, and were applied by crop reporting districts. These areas have been bounded to represent, as well as possible, homogeneous areas, and, it seemed, might have tax peculiarities developed from somewhat unique agricultural conditions. From observation, it seemed that county variations were unimportant, yet in each of two states, Kansas and West Virginia, an index series with county weights was prepared. These series were so similar to the series with district weights that the use of county weights was at best unjustifiable and perhaps useless.

In preparing the index, unweighted observations within a county were averaged to obtain a county figure for a given year. Then a district average was obtained by averaging the unweighted figures for the counties available within the district. To these averages weights were applied. The weighted average of these district averages became the state average, which was then adjusted to census figures before regional and national averages were obtained.

Adjustment at this point affected only the level of the state figures and not its form or trend, but did influence the form of the regional and United States indexes. Adjustment at an earlier point probably would have affected the form of the state index. In a state where county figures were greatly out of line with census figures, adjustment by counties might have been significant but we felt the step was not justified. Logically it seems that

the differences between sample and census should be relatively unimportant with an individual state. Furthermore, census figures are less trustworthy for counties than for states, because they are based on a restricted group of owner-operated farms.

The description thus far applies to the period for which continuous records on identical farms were available. For some states, this period ended with 1925; for practically all others it ended with 1930. Vacancies from 1925 to 1930 were filled by returns from voluntary crop reporters. Even then, the number suffered a net decrease of 25 to 30 percent after 1925. Both kinds of reports were used when available, thus eliminating the judgment as to which to use to represent a county.

Theoretically, there may be an upward bias in the crop-reporter returns. There appears some tendency for a reporter to make a return more frequently when his tax situation is bad. Yet, a comparison of the old index based on such returns and the new one based principally on reports by county officers agree too closely to permit a conclusion of significant bias.

After 1931, practically all data had to be obtained in the form of figures for taxes and acres on individual farms in each of two or three consecutive years. Such reports could not be obtained in practice for the same farms previously used or, in many cases, for the same counties. Thus, it became necessary in a given state to compute from data received at one time a two-year link or three-year chain index having a one year overlap with the previous series, and to adjust the extension to the main series.

This brings into direct comparison a sample of continuous records for identical farms and one chosen with the same degree of randomness each year. Use of a continuous sample avoids artificial breaks between years due to accidental variation in sample. We have assumed that accidental variation in the sample is adequately controlled by its size of sample and relatively good geographical distribution. Also, it is difficult to find in certain states, such as Montana, farms which do not change in acreage. Furthermore a continuous sample holds the sample fixed so that sooner or later it is nearly certain to become unrepresentative. A fixed sample chosen in an earlier year cannot in later years represent new farms—land first brought into farms—and one chosen in a later year will not represent for an earlier period farms which since have gone into other uses such as suburbs, factory sites, resorts, parks and forests or have been abandoned. Even shifts within the agricultural industry itself are great enough to ques-

tion the propriety of holding indefinitely to a fixed example. In Montana, the two methods of sampling gave appreciably different results, but for most states we believe the change has not seriously affected the series.

Choice of varying weights and preference for independent observations invite the question of "Just what do the Bureau's series of taxes per acre measure?" Above, they were said to show figures which when multiplied by acreage in farms would give an approximation to total farm real estate taxes. But total farm real estate taxes are influenced by changes in acreage as well as changes in taxes per acre. The per-acre series are also influenced to a lesser degree by changes in acreage. Thus, as farming within a state or county is shifted to less valuable land and the acreage figures increase, the value and average tax per acre become relatively less. This tendency will be shown with flexible weights and yearly independent samples. Continuous records and constant weights would avoid these defects. Would they not thereby exclude, however, a part of the changes we are trying to measure? The use of flexible weights and samples undoubtedly estimate better the actual amounts levied against average farmers.

In a stable community of a fixed area in farms, either continuous records or annual independent records will show fiscal policy as reflected in farm taxes. In a changing community it is difficult to maintain that changes in taxes based on a continuous sample and constant weights reflect changes in fiscal policy alone. What constitutes a fixed or constant policy in a changing community? Is it unchanged taxes on an established farm, or constant rate per acre on all farms? Is it constant rate per dollar of value on established farms, or on all farms? In a changing community must not the idea of constancy of policy depend upon an arbitrary definition? My personal view is that the services extended by the governments which levy taxes cannot be so separated and distinguished according to the areas, properties or taxpayers they serve.

In line with the above reasoning, we at the Bureau have concluded that the varying-weight series serve a more concrete and exact purpose than do those with fixed weights. We have concluded further that independent selection of samples for individual years is on the whole a favorable characteristic, particularly in the more recent years when we wish the results to be trustworthy to a finer degree. This preference is the reason why we chose the

series of tax per acre with varying weights as the most important type, and the one which we would express as series of index numbers.

So far this discussion has attempted to describe some of the more salient points in the Bureau's collection and compilation of farm real estate tax data, especially those related closely to the interpretation of the series. Many important but minor points have not been touched.

Briefly we will compare the resulting series and what they seem to show. The individual state series of tax per acre cluster closely together, so that a graph of the summary United States series very well represents the group. Here and there, however, substantial differences appear, and several types of differences can be seen.

The East North Central division average lies close to the United States average throughout the twenty-year period from 1913 forward. The states in the division in general do likewise. In the West North Central division, taxes per acre are lower, as might be expected, but percentage increase over the period is somewhat greater. The Iowa series would appear at least as well in place with the East North Central States as it does in the West North Central.

In the Northeast, the new England division shows a relative increase till 1929 about equal to that for the West North Central, but made relatively little reduction in the tax per acre after 1929. The average for the country was about a 36 percent decrease from the 1929 levy to that of 1934, but in most New England States farm taxes had a net upward movement for two years longer than elsewhere. In fact in three states of the division taxes per acre were higher in 1934 than in 1929. The Middle Atlantic series make a plausible link between New England and the East North Central. Until 1929 the three divisions look similar, but thereafter the Middle Atlantic States graphs have the appearance of turning downward only with difficulty, as in New England. In the Northeast also there appear some of the highest taxes per acre, the New Jersey average being $2.80 in 1930.

The Southeast is somewhat broken. The northern three states (Delaware, Maryland, and Virginia) might again be considered a transition between the Middle Atlantic States and the South. The rest of the division started with low taxes per acre in 1913 and increased rapidly. The greatest increases were in North Carolina with a 574 percent rise from 1913 to 1928 and Florida

with a 563 percent increase from 1913 to 1925. When the depression struck, however, the series for both states fell with the same heroic strides which had carried them up.

Mississippi and Louisiana farm taxes rose together and rapidly from 1913 to about 1925. Then for some reason the Louisiana line began to take on a form more similar to the one in Texas, while Mississippi continued to accumulate some of the heaviest farm tax rates (per $100 of true value) found anywhere in the country. In 1932 the state average rate per $100 equalled $2.66.

In the far West, the Mountain division had relatively small increases, taxes per acre about doubling from 1913 to 1929. In fact the series lay slightly higher in the early twenties than at any time later. Like most others, the Mountain States have shown decreases during the thirties. The Pacific States showed much similarity with other states, but much variation among themselves. Their diversity is so great that it raises doubt as to the propriety of grouping the three states at all.

Another comparison of interest is between the per-acre index series on variable and on fixed weights. The greatest difference which the two United States series develop is 23 points or about 9 percent, in 1930. It is of interest to compare the two lines in terms of their logic as presented above, but this will not be undertaken here.

These are some of the high points of the tax-per-acre series and the corresponding indexes. The other principal group of series is for taxes per $100 of true value. The data are the same as for the per-acre series. They are simply related to the series of farm real estate values currently prepared in the Bureau. This form of the tax series is intended essentially as an interpretation of the tax-per-acre series. It shows that although tax per acre for the the United States turned downward after 1929, the tax rate of $100 of value continued upward until 1932. From 1920 to 1929 tax per acre rose and land values fell, with a result that tax per $100 rose even faster than tax per acre. After 1929 taxes fell but values fell faster, and therefore tax per $100 continued to rise. After 1932 land values started to rise slowly while taxes per acre still declined. Tax per $100 thus declined for the first time since 1918.

The uniformity of method which permits such geographical comparisons is an important element of strength in this work.

The general examples given illustrate the logical way in which

the series separately computed, from independent samples but by uniform method, vary from each other through the period studied. The Bureau work has consciously been pointed toward measurements which can be made in uniform ways and the results of which should be of general use. Many related problems are unique to certain states or localities and should be treated by special methods and closely related to their local background. No attempt has been made to include such problems in these uniform series. The Bureau series aim to help form a better point of departure for just such local or special studies, and to furnish a basis for further farm tax and farm income studies on nation-wide, regional and state bases.

Discussion by William L. Bradshaw

University of Missouri

As a political scientist, I wish to congratulate the departments and professors of Farm Economics upon their splendid studies in the field of Rural Government. In many states, the agricultural economists have been pioneers in this field. But it is not necessary or appropriate for me to discuss their work at this time.

When I was asked to discuss this paper, my first reaction was that efficiency in local government could not be measured: My present reaction is that Professor Renne (though he has made an excellent beginning) has not yet devised a method of measuring efficiency, but has merely developed "unit costs."

Any analysis of "unit costs" is, however, an important contribution. It is certainly more accurate or more refined than merely considering the total expenditures of an office, or the total expense of a particular service. But unit cost does not measure efficiency. Early in the paper, Professor Renne admits that it ignores the qualifications of personnel and the quality of the service, such as its accuracy and completeness. But he also ignores the important fact that governments nowadays *must* render certain public services, even though they may be very expensive. Health and welfare work are examples. In such cases, efficient service would probably demand a relatively high unit cost, if that idea were applied; and the less inefficient service would have a relatively low unit cost. Certainly low unit cost would seldom indicate their efficiency.

My most serious criticism is that Professor Renne calls his index of unit costs an "index of efficiency," even though early in his paper he states that unit cost is only one factor in efficiency. In my opinion, he should merely call it an index of unit costs. Perhaps it could be called an index of economy, meaning only a measure of the expense of a particular office or service. In no case do I think he is justified in calling it an index of efficiency, because a true index of efficiency must take into consideration qualification of personnel and the quality and nature of the service. It is true that Professor Renne makes some comments regarding quality of

the service, particularly of the assessor. These were made, however, in addition to the so-called index of efficiency, rather than as a part of it.

Despite my adverse criticisms, I *do* think Professor Renne has made an excellent beginning on a most difficult subject. His index of unit cost is an important contribution. I hope he may devise scientific methods of measuring the more intangible factors, such as qualifications of personnel, quality of service, density of population and social needs, so that we may have a more accurate index of efficiency.

Discussion by H. R. Moore

Ohio State University

The development of the farm real estate tax series by the Bureau of Agricultural Economics has been a valuable addition to our knowledge of farm taxation. This series gives a perspective of the magnitude and trend of real estate taxes; and covering all states as it does it presents a reasonably accurate comparison of real estate taxation in the various states.

A number of statistical problems have arison in the development of the tax series and no doubt others will develop from time to time in the future. Mr. Jackson has discussed this phase of the subject sufficiently so that further comment on statistical method need not be made at this time.

I wish to mention one factor not mentioned by Mr. Jackson which is of significance in some states. Special assessments are not included as a part of the farm tax as assembled in this series. Although it is true that special assessments are intended to be in the nature of a fee they can on occasion become a tax when the charge exceeds the special benefit bestowed upon the land. That this has happened seems evident from the amount of farm real estate tax delinquency in the past decade which has been associated with special assessments. The trend of farm taxes would be modified in some instances if special assessments were included; and I believe that under some circumstances their inclusion would be warranted.

I wish to mention one other point which is in no way intended to be a criticism of Mr. Jackson's paper but which is offered as a suggestion which relates to the development of indexes of farm taxes generally. Some of these indexes cover real estate taxes only and others real estate and personal property taxes combined. As usually interpreted these indexes are taken as indicating the trend in farm taxes over a period of years. This is correct so long as the use is limited strictly to the taxes represented by the index. But it need be more widely recognized that the composition of tax systems is undergoing almost constant change. In the past two decades the change has been relatively rapid and sometimes radical. Farm property taxes have by no means retained a constant relationship to the total tax bill paid out of agricultural income. The recent decline in farm property taxes has been offset to a large extent by the imposition of new taxes usually falling on consumption. In final effect on agriculture these may merit just as much consideration as property taxation. In addition to the indexes of farm property taxes we need similar information on other taxes in order to establish a definite concept and more general recognition of the nature and relative importance of all taxes paid by farmers.

Further discussion by Mr. Jackson and Professors Renne, Moore, Bradshaw, Ross, and Haag brought out the following points:[1]

(1) That a real measure of efficiency would make units comparable regardless of physical variations.

(2) That the question of which is more important, (a) ability or (b) volume of business, in reducing costs of local government might be determined by multiple correlation or further research on relationships.

(3) That Professor Renne expects to extend his method of determining unit costs to schools in Montana.

(4) That in determining which is cheaper, the district or the consolidated school, the quality of services rendered is so important that many educators say the question cannot be answered because two entirely different things are being compared. The training and experience of teachers were suggested as a measure of quality although not a complete one. That schools with small enrollments are most costly per pupil and most schools are small. As a result, the school districts are being redistricted in Missouri to get high pupil load per teacher to reduce the cost per pupil of high quality teaching. In this case, quality and increasing costs are associated. That even if the one-room school costs as much or more than the consolidated school to operate, people object to consolidation because of the necessity for building a new school. In New York, costs in consolidated districts are high for about 5 years after consolidation and then come down, largely because of building and equipment costs in connection with the new school.

(5) That the present county may be the proper size for certain governmental functions, but too small or too large for others.

(6) That special assessments may range from charges which are clearly not taxes to those which are virtually, if not actually, taxes. For example, the exclusion of special assessments in California would give an inaccurate picture of farm real property taxes, while in Pennsylvania their exclusion would not matter. In the South, special assessments may or may not be taxes. The Bureau of Agricultural Economics has differentiated between special assessments and taxes by defining a special assessment as a charge for a service which the farmer had a choice of accepting or rejecting. In Ohio special assessments are not included in taxes per acre but are included in tax delinquency.

(7) That the change in the composition of the tax burden is very important. In Ohio less than 50 percent of the farmers' tax burden is property taxes as compared to 75 percent at an earlier period. The sales tax in Ohio was supposed to reduce farm property taxes but such information as is available indicates that it has not. Consequently the Bureau's index does not represent changes in the total tax burden which farmers must pay from income and must be used carefully particularly with persons not aware of its limitations. It was pointed out that the Bureau recognized the decline in the percentage of the farm tax burden represented by real estate taxes but is waiting to see whether, and to what extent, the trend will be reversed. There is some indication that the trend has been reversed and that the property tax is becoming a more important part of the tax burden again. It was pointed out that regional

[1] As reported by Norman Hurd, Cornell University, Secretary, Round Table on Farm Taxation and Rural Government.

conditions might affect the change in the trend for in Montana, the part of the tax burden represented by property taxes declined about 5 percent last year.

(8) That in some states, especially in the Great Plains area, taxes on chattels are a lien on the land and might reasonably be considered property taxes. On the other hand, real estate taxes may be collected from chattels in Alabama. It is expected that the Bureau may in time obtain personal property taxes in certain states to supplement the real property tax series, although its construction will present vastly more difficulties than have been encountered in constructing the present series.

(9) That the present tax series are probably as accurate as the price and income series of the Bureau, and may be used in comparing taxes and income. The tax series prior to 1930 are considered especially reliable for this purpose.

DAIRY AND POULTRY STATISTICS[1]

PROBLEMS AND PROGRESS IN DAIRY STATISTICS

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There has been an interest in dairy statistics over a long period of time, and this interest has broadened in more recent years. Progress in this field has been unmistakable but it has been accompanied by new problems. In some of the statistical studies that have been made the problems were not recognized or were not pointed out, and the tables stand as descriptions of a field, the completeness of coverage of which is unknown, and the limits of accuracy of which cannot be determined.

To the user of statistics these are vital matters. The layman unaccustomed to statistical procedures, and the technically trained research worker attempting to explore in fields somewhat unfamiliar to him, may both be led to wrong conclusions. The general limitations of the usefulness of data should be known to the user, and he should be sufficiently aware of the use of his tools so that he will not misuse them. None the less, the maker of the tools should place on them a correct quality label. The personal factor of "statistical integrity," in the compilation of statistics, has always been very important.

In further development of the discussion it is convenient to take up a few of the general subjects into which the field of dairy statistics may be conveniently divided and to comment briefly on some of the evident developments and problems, and to indicate possible lines of future progress. The work must be a correct statement of the facts such that, as year piles on year, there will be developed a historical series of usefulness in planning future action. That much of the available material serves both immediate and longtime purposes is sufficient evidence that it is even now good enough to meet public needs.

Since dairy cows are the producers of milk, and since the average life of a cow is only a few years, an accurate statement of numbers, not only of milk cows but of young females which will become cows, is one of the most important factual needs of the dairy industry. The annual changes in numbers, as well as the long time trends, are of significance not only as affecting the present and prospective supply of milk and dairy products but

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by Joseph A. Becker.

as determining the prices above feed costs which must be paid to secure an adequate supply of dairy products.

Some of the problems in determining these numbers are not yet fully solved, either as to the comprehensive base involved in the census enumerations, or the methods of carrying forward the estimates of numbers from year to year. In the first place, even the ideal definition of a "milk cow" is yet to be stated. "Cows and heifers two years old or over kept for milk" as of January 1, 1920, 1925, and 1935, in the census are not strictly comparable with the "cows and heifers born before 1928, kept mainly for milk production" on April 1, 1930. Neither do the reporters in the annual December rural carrier surveys and in other special related schedules give the same intepretation to "milk cows and heifers two years old or over kept for milk" as they do to "milk cows."

Over nearly a century of federal census cattle enumerations there have been numerous changes of dates, of descriptions of age and sex classes, of methods of selection of enumerators and supervisors, of editing and tabulating schedules, and analysis. Along with these have gone variations in completeness of enumerations and accuracy of individual schedules and final results. Hence, we are dealing, in our annual estimates, with the series of bases, in themselves variable as to completeness, accuracy and comparability. The highly commendable practice followed by the Census Bureau in its custom of including reprints of the farm schedule, together with instructions to enumerators, and some discussion as to comparability in its printed volumes is of great assistance to the users of statistics and this aid should not be overlooked. The keen interest that has developed among statisticians in recent years, in the possibility of annual "sample" censuses, will, if translated into action, be a genuine forward step in the improvement of census methods in agriculture, and will go far in advancing dairy statistics.

Annual estimates of changes in numbers of animals, themselves of great current importance, have been in late years, regularly revised to the base derived from the census and carried forward on the basis of year to year changes indicated by samples. Aside from comprehensive assessor's data collected in a few states, and a few special schedules used here and there, the sample in general use is that derived from the annual rural carrier survey in December, in which each carrier distributes a few cards to farmers along his route, to be filled out with the number of each kind of animals on hand, and returned to the agricultural

statistician. In New York this provides a sample of 3 to 4 percent of all the farms. When the sample is analyzed, it may be found to deviate from the pattern of the census figures in various ways. There will be a relatively small proportion of farms with only one or two or three cows; herd and farm size averages will be larger than the state averages from the census; the distribution of age and sex classes may be askew. In addition to this, it seems probable that too small a proportion of those herds just being started, or that are nearly liquidated, are included. Thus our sample, even that part of it which is "matched" with the same farms for the preceding year, fails to measure fully the expanding and contracting margins, and probably fails to reflect fully the changes from year to year; nevertheless, it does give an excellent index of changes.

In preparing the cattle estimates, other sources of data, such as identical crop reporter and dairy farm reporter herds are compared from year to year, special cattle schedules, livestock disposal schedules, and in some states assessor's reports, all give useful indications of change. In New York, one of the large dairy cooperatives secures considerable data from its members through a simple schedule on the back of the milk check, which is tabulated after the check has served its primary financial purpose. One of the milk companies, until recently made annual surveys of the herds of its patrons, securing much useful data with respect to annual changes.

Continued study is being made as opportunity permits, bearing on death rates, seasonal freshening of cows, seasonal and cyclical changes in numbers on hand, rates of replacement of animals, heifers and heifer calves being raised, changes in age status of cows and other factors which will help to improve the estimates and to provide some basis for forecasting future developments, both in animal numbers and in milk production.

In view of the fact that annual changes are relatively small, that accumulated trends are important, that shifts from dairy to beef and back are common over wide areas and that numbers of dairy cattle, by logical age and sex groupings, are fundamental in any economic analysis, progress in the future will be along the line of refined definition, greater accuracy, and more complete detail. These should be carried to accurate estimates for areas smaller than a state where local conditions, such as city milk marketing problems, appear to justify this amount of detail, as they do in the vicinity of some markets.

Milk Production Measurements: Successive attempts to collect

milk and farm butter production data in the federal censuses have resulted in notable improvements in such data, though the difficulties have been even greater than in the case of cattle enumerations. Milk is produced daily with much seasonal fluctuation; careful records of production are not generally kept; the unit most commonly used for measuring milk locally may vary from the unit prescribed in the schedule; and many farmers find that the question is so difficult that their answer, when given, amounts to little more than a hasty guess even with the help the enumerator can give. Defects in answers inherent under these conditions cannot be satisfactorily corrected in editing. The Census of 1930 appears to have approached more nearly to completeness and accuracy than other enumerations of milk production and has given basic figures of distinct usefulness.

While pioneer efforts to estimate milk production in intercensal years had been made earlier, it was not until 1923 that definite estimates of production per cow, total production of milk, farm use and sales were made on a statewide basis in a form that appeared to give real promise for a continuous series.

The following year, late in 1924, when crop correspondents were asked to give the number of milk cows on their farms, cows milked, and milk production for the previous day, on their regular monthly reports, there was begun the most important national record of current milk production.

A further step was taken in 1930 when special dairy farm reporter lists were established. These have given additional individual farm information on such important factors as cows in herd, cows milked and milk production, rate and kind of feeding, use of milk, methods of milking, whether by machine, by hand or by calves, season of freshening, per capita farm consumption of milk and other items of value in building up estimates of milk production.

The monthly milk per cow series, combined with attempts at estimating the number of cows during the year are giving valuable indices of the changes in production, month by month, compared with the previous year.

The indications from the June rural carrier surveys and the changes in the number of milk cows on farms, from month to month, as shown by summarized tabulations of continuous records for individual reporters are proving helpful in studying monthly changes in numbers.

Monthly quantitative estimates of milk production are especially significant in dairy regions where a fairly large propor-

tion of the milk is sold as milk or cream in fluid form. Under state milk control policies there has been an almost continuous demand for such estimates by the adminstrative officials.

A substantial statistical basis for monthly milk production figures now exists in only a few states and much more attention must be given to this matter.

There is likewise need for definite forecasts of milk production. These will be based on a combination of forecasts of numbers of cows, and feed supplies and a much more definite knowledge than we now have concerning the relation of present price relationships to future production, the effects of varying feed supplies, and possibly of the quality of pasture and of forage, on the quantity of milk to be produced.

Milk and Dairy Products in Commercial Establishments: The foregoing discussion has related mainly to milk production in total. In the more highly developed dairy regions where a large proportion of the milk or butter-fat goes into commerce, measurements of the intake and output of milk and butter-fat in its various forms in the assembling, processing and distributing establishments have been made and such series, where well developed, are particularly valuable in working out guidance information.

Statistics based on enumerations of milk plants, creameries, cheese factories, and other commercial establishments, in an attempt to measure the flow of milk and cream through commercial channels after it leaves the farm, offer difficulties in compilation and interpretation. In the first place, the fact that each plant handles the milk or cream from a number of farmers ranging from only a few to many hundreds makes it especially important to have the canvass complete from year to year. The omission or erroneous report or tabulation of items for even one of the larger establishments could well throw the figures for a county or for a given product into serious error.

Attention should be called to the fact that within the larger organizations, the management keeps itself fully informed as to its own operations, including production, day by day. Public agencies can be especially helpful in getting together all the facts, which are needed by all the industry, giving them completeness and continuity, and supplementing them with services that no individual can render, even for himself, through coverage of the entire field. The hearty cooperation of the great majority of those in the commercial dairy industry in furnishing reports is most gratifying.

The importance of records of market receipts is indicated by the relatively long period over which they have been compiled by individuals or trade organizations. For example, receipts of butter in Chicago are available back to 1867, in New York City to 1889 and in San Francisco to 1900.

Milk and cream receipts in the Boston, Philadelphia and New York Metropolitan markets represent an important statistical service in the dairy industry. The Milk Reporter series for New York City area, tabulated monthly by railroad lines, extend from 1885. As milk supply problems become more important with the growth of population and the extension of the milksheds, need was felt for more frequent reports, and the Department of Agriculture began to collect information on receipts, both by rail and by truck, for New York, in 1925. The rail receipts are published on a weekly basis for New York with both rail and truck on a monthly basis in New York, and weekly in Boston and Philadelphia. Two very difficult problems have arisen. In the beginning in New York at least, most of the milk was received by rail, at a few definite terminals, and the data could be secured from the railroads quickly and accurately. With the rapid expansion of the use of motor trucks after 1926, direct deliveries to dealers' distributing plants resulted in the necessity of developing more scattering sources of information, some of which is not fully reliable and with the possibility of missing some. Also, the continued expansion of the metropolitan areas leaves the question open as to comparative completeness of coverage and geographic limits of the market.

As to actual rates of per capita consumption most of the available information is deduced from production, market receipt and trade output records, or from Board of Health records, none of which can be used with precision, even on a state basis; for this purpose, in a few cases, surveys have been made. Most of these have been limited in scope. There should be information currently available that would really answer the questions relating to the extent of shifting from fresh milk to evaporated milk in a given area and the per capita consumption of each of the products. Here is an opportunity for genuine progress in a field that is still in the early pioneer stage of development.

Coordination and Presentation of Dairy Statistics: The scattered publication, the lack of comparability as to timing and definition, and the wide variation in the apparent coverage and reliability of the available material are indeed disconcerting. There is genuine need for bringing more of it together in one place. The

Department of Agriculture Statistical Bulletin No. 25, Dairy Statistics (through 1926), together with supplements issued since that time in limited editions, is an excellent example of collection. The Year Books of Agriculture and Agricultural Statistics likewise give considerable space to these subjects. The Department of Agriculture and Markets in New York and the Department of Agriculture in Wisconsin, both in cooperation with the Bureau of Agricultural Economics have made progress in such collection. Some of the dairy trade publications have rendered especially good service in bringing together current data from scattered sources.

In presentation and interpretation of current trends the monthly mimeographed "Dairy Situation" from the Department of Agriculture, some of the state crop and dairy reports, and publication of some of the colleges, such as "Marketing Information" at Cornell are available. In annual "Outlook" reports, the whole field of basic data is scanned and used interpretatively.

STATISTICS OF POULTRY AND EGG PRODUCTION

S. A. Jones
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United States poultry statistics begin practically with the Federal Census of 1880, which reported the number of "barnyard fowl" on hand as of June 1 of that year and the number of eggs produced in 1879. Later censuses continued and developed the poultry items. These data provide almost the only comprehensive long-time record available. They require adjustment for changes in form of inquiry and time of year asked. Town flocks are omitted unless they meet the census definition of a farm, and most city flocks and a large proportion of town flocks are probably missed. These might add 5 to 10 percent to the recorded chicken population, and more in older states where towns are numerous.

The very useful breakdown of flocks by size groups published by the census for 1930 is being partially duplicated for 1935, including the entire return for the Northeastern and Far Western States, where large commercial flocks are numerous, and enough counties to provide a 10 percent sample in most of the remaining states.

The Bureau of Agricultural Economics of the United States Department of Agriculture has collected and published, since

1925, through its Division of Crop and Livestock Estimates, annual state data covering numbers of chickens on hand January 1, together with annual production, farm consumption, mortality and sale of chickens and eggs during the previous year. These estimates are based upon monthly reports covering from 20,000 to 25,000 farm flocks, supplemented by annual reports for a much larger sample. Monthly reports on average numbers of laying birds and production of eggs per flock, and seasonal reports of young birds and of pullets on hand, have supplemented these annual reports. Farm prices of poultry products, and of feed making up a poultry ration, with indexes and ratios of relationship between these, have been issued, the monthly series beginning in 1909.

Related data on city market receipts and stocks, and on prices of poultry and eggs, have been published by the Dairy and Poultry Products Division of the same Bureau.

A considerable body of miscellaneous data on production has been assembled by State Extension Specialists in Poultry, most of it bearing upon problems of flock management and the economics of production.

State Departments of Agriculture, commercial organizations, and trade journals have published production statistics of regional value. Many of these statistics are useful to fill in gaps in our general knowledge and also as check data on production estimates.

As the statistics published by the Division of Crop and Livestock Estimates furnish practically the only current production statistics available, its reports will be mentioned in some detail as to scope and purpose, with the purpose of developing suggestions for improvement in the present series.

Number of Chickens on Hand

a. Annual January 1 estimates of numbers of hens, pullets, and other chickens, respectively. These provide the essential annual inventory of laying and breeding stock.

b. Monthly reports on average number of layers per farm flock. These show current trends of change in numbers of hens and pullets of laying age, and thus provide the factor of first importance for estimating egg production currently and during ensuing months.

c. Monthly, April to July, reports on average numbers of young birds per flock, on hand of the current year's hatchings.

These show the trend of production of replacement stock, and indicate the producers' intentions with regard to the size of the laying flock during the coming season. They provide definite indications of the number of chickens to be marketed during the ensuing year, and furnish data needed for annual estimates of chickens raised.

d. An annual inquiry on numbers of roosters provides the average number of such breeding stock per 100 hens, significant of breeding intentions.

e. October 1 reports on pullets, of laying age and not yet of laying age, per farm flock, being held for layers. These data show the approximate number of pullets for layers and the number of those already in the laying flock, as well as the number of hens remaining. These facts may be used to determine rather closely the size and composition of the ensuing season's laying flock. They also have an important bearing upon the number of eggs that will be produced per layer during the fall and winter. More frequent inquiries concerning numbers of pullets, between, say, September and January, would probably be desirable in order to keep abreast of current and prospective changes in the composition of the flock.

f. The number of "other" chickens reported on October 1, which are mainly cockerels, reflects the available supply of males remaining for market disposal or for breeding. This item of other chickens has included pullets not intended for layers. It is planned to limit it hereafter to males and to chicks; i.e., everything but hens and pullets.

Chickens Raised

This is a derived estimate. It is based upon the number of young birds at the close of the year, plus the number of young birds eaten and sold during the year. The changes in the number of young birds reported on farms on June 1 and July 1 before the heavy marketings of young birds begin, are used as a check on this derived estimate.

Disposal of Chickens

a. The January 1 inquiry concerning the number of chickens consumed by producers or retained in the flock, and the number sold, provides the principal basis for estimates of the farm income from chicken meat. It also supplies a basis for estimates of probable future producer consuming demand, which are needed

along with those on production and farm holdings, in estimating the probable future supply of chickens for market. This single annual inquiry on consumption gives results which are subject to a larger margin of possible error than is desirable. A quarterly inquiry on home consumption during the previous month, which was established in 1936, will narrow the future range of possible error.

Egg Production

The statistics of current farm production and disposal of eggs are comparable with those for chickens.

a. The monthly reports of crop reporters, computed in terms of the average production of eggs per 100 layers, have given what appear to have been reasonably accurate indications of change in rate of production per hen, and when coupled with the monthly and annual data on average numbers of layers in these flocks, have provided the basis for annual estimates of egg production. As these returns cover layings only on the first day of the month, they cannot accurately reflect local variations in the monthly production due to extreme changes in weather in some months. For large areas, these irregularities probably tend to cancel out. Definite information on the relation of the first of the month production to the entire month's production will be available from the new reports covering commercial flocks, which include figures for both periods.

b. *Hatchings.* No attempt is made to secure a current record of home hatchings. A special inquiry made in 1928 and repeated in 1935 confirms the continued increase in the proportion of chicks produced by commercial hatcheries. The gain in this interval appears to have been made at the expense of home hatching in incubators rather than under hens. The report issued by the Division of Dairy and Poultry Products, giving the record of hatchings by a sample group of large commercial hatcheries, gives the first positive indication of the trend tendencies of the season. These reports, as well as the April and May reports of young chickens on hand, require allowance, among other things, for earliness or lateness of the hatching season. Increases might suggest early hatchings, or more chickens, or both.

Egg Disposal

a. Eggs consumed by producers. This estimate is based upon an annual February 1 inquiry, asking the number of eggs con-

sumed in the producer's own household during the previous year.

b. Eggs used for hatching. This figure has been based upon the assumption that about two eggs are required for each chicken raised, this being on the basis of a two-thirds hatch and a one-fourth mortality.

c. Eggs sold. The estimates of eggs produced, less the eggs required for home consumption and for hatching, have afforded the principal indication for the estimates of eggs sold.

The inadequacy, long realized, of an annual inquiry on home consumption, will be overcome in part by the inauguration in 1936 of a regular quarterly inquiry on home consumption of eggs during the previous 7 days. This matter of home consumption of eggs and chickens is second only to the item of production in arriving at an estimate of eggs available for market. The average farm family eats a much greater number of eggs and chickens than does the average town family. These farm families with chickens number about 5,833,000 out of say 30,000,000 families in the United States. If prices of eggs and chickens are relatively high, the farm family may eat considerably fewer of them than usual, but if prices are relatively low, the farm family consumption may increase greatly.

Degree of Reliability of Data. The degree of accuracy of the estimates of egg and poultry production published by the Department of Agriculture is important. The dependability of indications of change drawn from the record of sample flocks may be questioned on several grounds. The present sample is not representative as to size distribution. The average size of the sample even after omission of flocks of over 400 birds is considerably larger than the average of all census flocks. It has in the past failed to include a proper portion of large commercial flocks in states where these are important, or on the other hand, to include enough small household flocks, which include the larger part of the chickens in many states.

It cannot be stated with great assurance just how accurate the estimates are, because of the lack of positive checks. The only measuring rod available is the Federal Census. Before the census can be used as a check, allowance must be made in it for lack of comparability in successive censuses. Differences in it arise because the population census is taken concurrently at the regular decennial period but not at the intervening 5-year period. The form of census question is sometimes changed. The compensation to enumerators is more or less attractive at different censuses ac-

cording to the general employment conditions, and this tends to determine whether enumerators will stay on and do a complete job or be inclined to finish the work as quickly as possible at some expense to completeness. The time of year the enumeration is taken affects to some extent the type of person available for the job. A selection of these, primarily for fitness for the job, would help. Adjustments in the census figures are needed also because present numbers of livestock, as well as memory of past numbers, will vary with the time of year when the census may be taken. Adjustments for such factors introduce further uncertainties.

Chickens on Hand. The estimate of *chickens on hand* on January 1, 1924 was raised above the census about 3 percent, mainly because of some obvious items of incompleteness in that first quinquennial enumeration.

In 1930 the census was taken in April and the census figures for this item were accepted after being adjusted back to the date of January 1 on the basis of reported changes shown in the sample flocks belonging to Crop Reporters. In 1935 the estimate was found to be about 10 percent above the census. The difference in that year may arise from one or several possible causes.

1. If an excessive upward adjustment of the census figure to a January 1 base was taken in 1930 the estimates beginning in that year would be on too high a basis.
2. Mortality and culling between January 1, 1935 and date of actual census enumeration, which was probably sometime in February, would make the census figures too low by several percent.
3. There may be an undetected upward bias in the sample indications, 1929 to 1935.
4. The estimated decrease due to drought in 1934 may have been too small.

Chickens Raised. The first estimate of chickens raised in 1924, was set at about 8 percent above the census figure, because of assumed incompleteness in such an inquiry at that season of the year. The census figures of 1930 were accepted unchanged. The present 1934 estimate is now below the census by about 1 or 2 percent, mainly because of failure to keep up with the increase in the South where late summer hatchings not reflected in our material may have been the cause, and because our sample does not include the late development of a huge broiler production by large producers.

Eggs Produced. The first estimate of eggs produced in 1924

was set at about 21 percent above the January 1925 census figures. The basis for this increase was a study of the relations shown between eggs produced and chickens on hand at previous censuses, the probable degree of understatement in a mid-winter census, the number of eggs needed to supply apparent consumptive requirements and the obviously increasing production of eggs per hen. A wide difference between the farmers' estimates of yearly egg production is evident, if made to the enumerator in midwinter when hens are laying few eggs, or by contrast at the period of peak production in the spring. The census figures taken in the spring may exceed actual production, but as some incompleteness and omissions are to be expected in any enumeration, it has been thought best to accept the spring census figures on eggs as approximately correct, and to adjust the winter census figures upward to make them comparable. The trend of census figures since 1880, reflects two outstanding facts. First, the gain of egg production over chicken numbers. Second, the tendency of reported egg production to vary with the seasonal production in the month of enumeration. The spring census of April, 1930 was accepted for egg production in 1929. The 1934 estimate of production of eggs was found to be 20 percent above the winter census figures for that year, or in reasonable agreement with the relation accepted for 1924. However, it is believed that the 1935 census is more complete than that of 1925. It is probable that the coming revisions of estimates for the past 10 years will result in raising the indication of eggs produced in the years 1924-27 by several percent over the figure originally taken. Also some reduction in the series 1930-35 is probable, its extent being contingent largely upon the adjustments that may be made in the figures for chickens on hand January 1. The result will be to lower the trend of increase between 1924 and 1934 shown by the present estimates for both chickens on hand and eggs produced.

The expedient of excluding commercial flocks of over 400 layers in working up the data has tended in most states to offset more or less the lack of sufficient returns from small flocks, and to give the sample a roughly centered group which for the United States as a whole has given fair indications of actual annual changes during the past 10 years. For large states with big samples and a smooth size distribution of flocks, the annual indications have been reasonably satisfactory, but for small states with unusual size distribution of flocks they have been very unreliable.

The development of the Poultry and Egg Production Project

of the Division of Crop and Livestock Estimates to include a sufficient number of flocks of commercial size in addition to the ordinary farm flocks, in order to give a better rounded picture of the entire industry, is proceeding. The present sample is being analyzed, and through closer study and weighting by size groups, it is expected to secure a more accurate measure of current changes.

Reports covering commercial flocks will be secured in all states. In the states where production by this group is especially important, the state office will probably issue state reports, but in general, it is proposed to publish only regional figures as in the past.

The benefits aimed at by the enlarged program of poultry and egg production estimates are mainly these:

1. Improve the present sample by inclusion of a sufficient number of reports for commercial flocks.
2. Improve the present estimates of numbers and production through size stratification and weighting of the improved sample.
3. Work toward monthly estimates of absolute production of eggs, and seasonal estimates of numbers of pullets and other classes of chickens.
4. Secure better information on consumption, mortality and sales.
5. Restore the annual fall turkey estimates and develop them further to show the number of poults on hand in July.
6. Develop regional and possibly state price indexes and ratios for poultry products and poultry feed.
7. Develop such additional special reports as may be desired by commercial producers, so far as possible.
8. Endeavor, by study of past relationships, to establish more accurate estimates of future numbers and production.

Discussion by S. W. Russell

Swift and Company

A few years ago if one wanted to estimate the probable supply of poultry to be marketed in the fall, for instance, he had to make a survey of his own on the size of the chicken crop or base his judgment of the economic factors which cause changes in production both of which are difficult and expensive things to do. Now he has 10 years of experience with the number of young chickens per farm reports, and a 12 year record of the number of hens upon which to base our judgements.

If he needs to estimate probable milk or butter production he can now see under what conditions milk production per cow increased or decreased in the past. Our work with these statistics has given us an increasing confidence in their accuracy.

We have found that most of the poultry and egg statistics fit into the general picture quite well. For instance, take the feed-egg ratio during

the summer. This is made up of two series either one of which might be inaccurate. High feed prices should discourage egg production. And by comparing the feed-egg ratio with the reports on eggs laid per 100 hens, during the summer, we find that is what happens. If any one of these three series was seriously inaccurate no such correlation could be found. Relationships like these could not be found if the data were not substantially correct.

The number of hens culled from flocks correlates with the quantity in storage January 1.

The number of young chickens per farm July 1 correlates with the number of chickens marketed in the fall.

Our use of dairy statistics has not been as extensive as yet as they have been of poultry and egg statistics but we have found numerous significant relations between them and are finding them very useful.

Perfect accuracy is unnecessary. Conclusions based on statistics of economic conditions are necessarily only rough approximations and would remain as such if our basic data were perfect.

We are looking forward to using the information on commercial flocks which is now being developed. This should help to complete the production of poultry and egg production. More data on small flocks may also be necessary to balance the large ones. We could use reports on winter broiler production and earlier reports on the turkey crop would help. Our measures of consumption would be greately improved if we could have an index of retail sales weekly.

Estimates of the number of cows being milked would help. Could use monthly estimates of milk production, milk marketed and farm butter production to advantage.

Mr. W. C. Waite commented upon the evidently doubtful nature of some of the census data. 1. He suggested efforts to further improve its comparability by avoiding changes in date of enumeration, or in form of questions unless decided improvement is possible.

2. He felt the need for an improvement in farm price data, based upon differences in type, grade and quality of product.

3. Also stressed the need for data upon the quality of the products mentioned.

4. More accurate information upon the movement to market, and finally into consumption also needed.

Mr. Shackelton spoke as follows: 1. Data on numbers of chickens on hand to be useful for current market needs should be available earlier, not later than the 10th or 12th. Otherwise useful only as background and for forecasts.

2. Does not appear sensitive enough to reflect the market movement. The receipts vary as much as 50-70 percent while the change in the farm index may not exceed 10 percent.

3. Storage holdings most important single item of market supply news. Earlier release of report desirable, and twice monthly instead of once.

4. Receipts need to be shown separately for storage and fresh.

5. Urban actual consumption data a great need.

6. Hatchery report good, but needed earlier.

Mr. Z. R. Pettet, Chief Statistician of the agricultural census, stated that the Census Bureau is endeavoring to establish a permanent staff of statisticians and experts, who will be available to carry on special investigations including perhaps an annual sample census between the years when the regular agricultural census is taken. To the extent that this intent can be put into effect, this will provide a body of permanent trained personnel to supervise the general agricultural census in the years when it is taken.

Response by S. A. Jones. An effort is being made to publish these various reports more speedily. The production reports can probably be put out about the 12th. A certain lapse of time is required after the first of the month to receive reports from cooperators, to arrange them for publication and to prepare appropriate comments.

The division between fresh and storage stocks, in the data of city receipts, would be impossible without considerable expense. Indeed, the shippers might object to giving the information. The suggested price and quality data would involve considerable additional cost. Funds for this and for some of the other improvements suggested are not now available. The relation of production, storage, and primary receipts data, to city receipts, are not as close as might be desired. This lack of harmony is due to other elements involved, such as farm consumption, interior holdings and price incentives, which intervene. More study of the interrelations of these factors is needed. Some limited studies of urban consumption have been made through the medium of reports from retail stores, mostly from the chains, and by consumption surveys. These sources of information might be developed if the work were established as a definite project properly financed.

LAND UTILIZATION[1]

THE SOCIAL ASPECTS OF LAND ADJUSTMENT PROBLEMS

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The causal relationship between the land and the people in producing success is not easy to determine or trace. But the causation need not be linear to be important or recognizable. The best farmer in the world cannot make a success on the poorest land on earth and the worst farmer can fail on the best land on earth. Thus, the land economist and the rural sociologist are both whipped as practical persons if either attempts to prescribe adjustments without the aid of the other. I shall leave it to the land economist to specify and describe his contribution and confine myself to a discussion of the contribution of the sociologist.

The sociologist is a student of human culture, social institutions, and human relations. He recognizes that physical factors, one of which is land, must be given due weight in explaining human culture; that economic enterprises, one of which is agriculture, must be given due weight in explaining both human culture and most social institutions; and he recognizes that many, though of course not all, human relations are predicated on physical factors and economic arrangements. He would insist, however, that the cause and effect relationship also runs consistently in the opposite direction: that cultural patterns both physical and mental handed down from the past, greatly influence the adjustment to, and use of basic physical factors such as land; that adequate social institutions are both the cement and the ultimate test of the efficiency of the farming enterprise; and that some human relationships, built up and standardized by other than economic processes, should be controlling in making adjustments of people to the land and land to the people.

But it is not the purpose of this paper to deal with broad generalizations, so let us turn to some concrete relations between types of land use and specific types of human relations and institutions. The basic spatial patterns of rural society all over the world are correlations of land uses. The location of farm families in relation to each other and in relation to social institutions and other public facilities is largely determined by the size of farms which proper land use adjustments require. In areas of small

[1] The following discussions are abstracts of papers read before a Round Table Session at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 29, 1936. Prepared by Gladwin E. Young.

farms, farm families can and sometimes do live in something approaching village communities, while in the extensive ranching areas families with children of school age do not even attempt to live at the ranch except during school vacation periods. In the first instance, a full set of social institutions, the use of all types of public utilities and adequate recreational and cultural life are possible, while in the latter none of these things is available except at great cost and some of them are not available at all.

Social institutions depend as definitely upon people for their survival as plants do upon moisture, sunlight, and plant food, and unless population is sufficiently dense to support social institutions, the character of the land and the determination of its most economical use do not adequately answer the fundamental problem connected with its occupancy.

Studies conducted in a number of states during the past few years, for instance, have determined that the operation of an efficient high school requires 100 students. The families required to provide 100 high school students will, under normal conditions of age distribution and school mortality, furnish 360 pupils to the elementary schools. Thus, a minimum school unit in terms of school population is 460. The normal number of families necessary to furnish these 460 pupils is 402.

Now let us see what this means where the farms average 1,610 acres in size, as they do for the whole State of Wyoming. It means that the school district must cover an area of 1,011 square miles, and that with the consolidated grade and high school house located at the center of the district, those at the far corners must travel approximately 30 miles to school. This is three times as far as the school experts say is feasible in terms of both time and money.

What is true for schools is true for churches, libraries, hospitals, and recreational institutions, except that it requires about 3½ times the population to support a library and 5 times the population to furnish the clientele for a hospital than it does to support a high school.[2]

Let me illustrate by presenting one more scale of social measurement, viz.: rural electrification. The Rural Electrification Administration calculates that a minimum rural line requires 75 customers on a 25-mile circuit, or three customers per mile, and that the absolute minimum cost per mile for installation is $832. In an area such as I have just described, there would be less than

[2] Kolb & Brunner, *A Study of Rural Society*, p. 596. Nason, W. C., "Rural Hospitals."

one family for each two miles and the cost of installation alone would thus be more than $1,664 per farm home.

Assume now that it has been determined by the land economist that a given area of 1,000,000 acres, which has previously been occupied by 2,000 families living on farms that average 500 acres in size, should be shifted to a more extensive use, and the average size of farms should be 1,500 acres. This adjustment will require the removal from the area of 1,500 and the retention of 500 of these families. The density of settlement of the original area will thus be reduced to one-fourth of what it has been and assistance will need to be given to both the 500 families which are to remain and the 1,500 which are to relocate. I do not deem it a digression to say that while a number of such situations have developed in the last two years, the problems involved have as yet not been approached in any realistic fashion.

I shall describe three situations arising in this program of adjustment which the sociologist should assist in analyzing: First, the situation as it exists before adjustments begin; second, the problems involved in replanning the old area; and third, the problems involved in assisting three-fourths of the families to relocate.

The sociological analysis of the present situation will show the following:

1. 2,000 farm families in the area
2. 200 families in small towns or villages
3. 10,000 total population
4. Age distribution as follows:

   300 persons over 70 years of age
   1,300 persons between 50 and 69 years of age
   3,620 persons between 20 and 49 years of age
   4,730 persons under 20 years of age

5. 3,190 children of school age (from 6 to 18 years of age), but only 2,200 of them in school
6. 199 school districts in the area, but 49 of them not operating, 33 of them operating in rented buildings, and 2 others operating in ranch houses
7. 64 of the schools are operating with 10 or fewer students, 20 with 5 or less, 8 with 3 or less, and 1 with only 1 per school. There are only 10 students for each employed teacher in the area
8. A number of children have had to leave home in order to attend high school, and a few in order to attend grade school
9. There are no adequate high schools in the area, although there are 6 inadequate ones, one of them operating with only 11 students
10. There are 25 churches in the area, all operating with part-time ministers or only with special meetings
11. There is not a hospital or a public library in the area, although a few

of the schools have small libraries, no one with more than 25 books
12. There are no electrical lines in rural areas and only half of the homes have telephones
13. 50 percent, or 1,100 families are on relief

NOTE: The estimates are based on data taken from actual surveys of regions similar to the problem area pictured here.

Turning now to the 500 families, or approximately 2,500 persons, which the land economist says the old area when adjusted to its new use will support, what questions does the sociologist raise and what contributions can be made in finding answers to such questions? The first question is very basic, viz.: how did the economist determine that the area will support a population of 2,500; what standard of living did he have in mind when he used the word support; has he given due consideration to the combination of clientele and distances in their relation to social institutions, as well as land conservation and farm income; and wouldn't all of these things have been better determined as factors in land adjustment if the sociologist had helped in the determination?

But let us assume that the sociologist was in from the beginning; what other specific questions would he raise? I shall list four:

1. Which families should remain in the area? Which of them will make the most homogeneous group, taking into consideration blood and marriage kinships, religious affiliations, adjustability to new types of farming, and the perpetuation of a stable amount of population?
2. What spatial arrangement of settlement in the area will give the greatest possibility of adequate institutional life in schools, churches, trade centers, and other community facilities?
3. What is the relation of the area of settlement to economic and social arrangements which lie outside of, but adjacent to the area: trade centers, schools, churches, etc.?
4. What compromises should be made between sentiments of attachment to location and sheer economic criteria of adjustment, and what compromise, if any, should be made between objectively determined standards of adjustment and the people's own accepted standards of living and culture?

To answer these questions, it will be necessary to assume that the adjustment prescribed by the land economist or by the land economist and sociologist will hold good for more than one generation, and that the factors of land use and the degree of mechanization, and thus the size of farms as well as the demand for man power, will remain approximately stable.

It is immediately apparent that to leave only those families which are beyond the child-bearing age would soon depopulate the area or require substantial inward migration, and to select only young couples whose families are not yet complete would

soon over-populate the area and again create maladjustment in land use or require considerable outward migration. To obviate both of these future maladjustments, that combination of families should be selected for continuance in the area which furnishes at the time, and will continue to furnish through the cycle of a full generation, a normal age distribution for the total 2,500 persons of the community. To accomplish this selection would require an analysis of the total present population, family by family. An adjustment upward of the proportion of younger couples would probably need to be made to compensate for aged couples whose life expectancy is short, but who because of dependence for support upon their sons and daughters or because of sentimental attachment to the old locality should be allowed to remain.

Under the old arrangement, the density of population was about 6.4 persons per square mile, and we have seen that the institutional set-up was very inadequate. Now the density of population will be only 1.6 persons per square mile and the institutional and community set-up will become much more difficult. But since there is no object in the program of land adjustment except to make it possible for those who farm it to obtain a more adequate and satisfying life, the sociologist must insist that standards of at least minimum social adequacy be contemplated, else there will be no acceptable adjustment.

Let us therefore analyze the new situation. It is as follows:

1. 500 families and 2,500 population
2. Enough school children to supply clientele for a maximum of two high schools if every child of high school age attends, and 17 two-teacher consolidated grade schools if all children of school age attend
3. Adequate population to support 2 churches
4. Not enough population to adequately support a public library unless it is in conjunction with a high school
5. Hospitalization will have to be provided outside of the area
6. Electrification, and even telephones and good roads, will be possible only if residences are grouped
7. Only one small trade center will be possible within the area, and therefore larger ones must be available adjacent to the area

The sociologist is not utopian if he prescribes that the population be so spatially located that no family be farther from a consolidated school than 10 or 12 miles and no farther from a trade center than 10 or 15 miles. Even closer grouping along channels of communication will be necessary if rural electrification and community life are to be possible.

He cannot prescribe any rule of thumb for judging what com-

promise needs to be made between economic criteria and adequate standards of living, on the one hand, and the sentiments and desires of the old residents on the other. All he can do is to make a family by family analysis and recommend that adjustments be made in the light of his detailed findings. I think he will be sure of one thing, however, viz.: that neither his own standards of culture and living nor those of some city utopia can be thrust on these farm families, and that to attempt such will more likely result in maladjustment than adjustment being accomplished.

I need not go into as great detail concerning that part of the population which is to relocate, for the same problems in stable tenure and adequate community life are involved. To them, however, are added the problems of settling in a new locality, living in a more densely populated community, learning new farm practices, making new neighbors and friends, and presumably attaining a higher standard of living. Furthermore, the total residue of the original population must now be handled, the landless, the physically abnormal, and the indigent, as well as the normal.

So far as the normal are concerned, their adjustments demand about the same sociological analysis as those who remained in the old area, except that some compromises are always necessary between old habits and new situations. In the case of the physically abnormal and indigent, the social diagnosis will result in prescribing proper institutional or other public care, possibly in some cases a type of subsistence garden retirement home. In the case of the landless or propertyless, who are physically and mentally normal, the sociologist would probably have no more pertinent suggestion to make than the economist beyond the fact that he, of the two, should probably be depended upon to adjudge the family's capacity to make progressive adjustments upward in general and specific economic and social attainment. In any and all cases, the sociologist should be assigned the task of the analysis of family by family, the task of prescribing the age, sex, and other population characteristics of the new settlement and the institutional and community adequacies which should be used as criteria of good adjustment.

Presumably, in the new community the spatial pattern will be very different from that from which the families have come and from that just described for those who remained in the old area. The farms will be smaller and the population more dense. The institutions can therefore be larger and more diverse; the socialization process will be more dynamic, and the social sanc-

tions and taboos more exacting. I need not, however, list the standards of adequacy which should be applied in these more densely settled communities. In most cases, the opportunity will not present itself to make "paper perfect" plans, for the great majority of those who relocate will locate in already established communities where the institutions, habits, and customs of the present residents will gradually triumph over paper plans anyway. The more important thing is to emphasize that each family has its own age and sex composition, each has its own combination of abilities and disabilities, and each has its own mental and cultural pattern; and that to know these facts family by family before attempting to offer guidance and assistance is probably of even greater importance than to know the proper size of farm unit to which to move a hypothetically normal but unknown family, or to prescribe the standard of living and culture which it must have before it is selected for assistance.

Finally, to state very plainly the thing I have just been striking at: the practical sociologist's greatest contribution to the problem of readjusting people to the land is, on the one hand, to assist the land economist in arriving at judgments on areas for evacuation, and on the other hand, to keep the engineers, architects, and other "paper planners" from assuming that cultural processes and human habits can be disregarded in making economic and social adjustments. In between these two unwelcome missionary tasks, he should make the family, institutional, and community analyses in both the areas of evacuation and resettlement.

APPLICATION OF RESEARCH TO ACTION PROGRAMS

E. H. Wiecking
Resettlement Administration

Land Utilization in recent years has rapidly moved beyond the confines of research definitely into the field of public action. Exercise by public agencies of the functions of land use planning, purchase, and conservational development of poor farm lands, settler relocation, and certain aspects at least of what is now called rehabilitation in place, were, for example, long advocated by the United States Department of Agriculture and land economists throughout the country, an advocacy which, in turn, was based upon exploratory research carried on both in Washington and in the states. First finding expression as action programs in the work of emergency agencies such as the Land Program of the

FERA, the Land Policy Section of the AAA, the Resettlement Administration, and other agencies, these functions appear now destined to become permanent functions of the Federal Government.

Land Utilization, Rural Resettlement, and Rural Rehabilitation—these three administrative divisions of the Resettlement Administration represent three functions vital in an action program for land use and rural welfare, and, fully as important, essential to a well rounded adjustment program for agriculture. Here are essential new instruments for rural reconstruction, and it looks as if another action program will soon be added—in the field of tenancy, whose evils the agricultural economists and rural sociologists have talked and written about for years.

The movement of the field of land utilization, as we have known it, from an essentially research basis forward into the stage of "doing something about it" can only be gratifying to all interested in this field of work, especially since this development can be fairly considered in no small degree a result of their demonstration by research of the need for it.

Apparent realization of this first goal throws a tremendous responsibility upon those called upon to administer the action programs to see to it not only that their policies but their execution of these policies clear down to the so-called "details" are sound and constructive. But it also very definitely puts all of us technical men squarely on the spot. Everyone will agree that programs of action to be sound, constructive, and successful must be guided throughout by the results of careful research and planning. But if we as researchers interested in land use are to make ourselves felt in the action programs, we must be prepared to deliver, and deliver the kind of research assistance that an action program demands under penalty of our results and our judgments not being used at all. Where programs are established by government, whether federal or state, and thus are under mandate to act, that penalty may mean serious mistakes. But programs of action fully as important and fully as necessary as a federal land purchase and development program—maybe more important in their long run potentialities—rest for their acceptance, initiation and execution primarily upon action taken by local groups of people themselves, such as, for example, rural zoning, in which Wisconsin has led the way, or the cooperative grazing association developed by Montana, or the soil conservation district plan sponsored by the Soil Conservation Service. Here the penalty of failure of us researchers to make our results

and ideas vital and usable may be even worse—nothing at all will be done, and in the meantime, waste of natural and human resources marches on.

If we research men accept the responsibility and the opportunity now so clearly placed before us by a land-use conscious public, and really expect to have our materials, our ideas, and our judgments actually used, more of our research will now need very definitely to be oriented to the action point of view, the planning point of view, the point of view that we, too, are going to help see to it that "something *is* done about it." It will mean that more research will have to be done on the ground, in the field, where the land problems and the human problems are. There are such great variations from area to area, physically, economically, socially, that action programs to be ultimately effective must be brought down to planning in terms of a specific local area. It will mean that we shall need to have the closest possible working relations with the action programs, with the *persons* taking the action, in order that we may have a full understanding of their problems, their methods, the practical realities they buck up against in trying to translate "good ideas" from paper to practice. Further, much of the important guidance that research men can give is most effective when given as a part of day to day consultation between men who appreciate one another's problems and the value of one another's fields of technical knowledge. And it is the so-called "details" of operation that so often wreck the execution of good plans and policies. We need to be active participants in certain processes, at least, which lead to action. Where, for example, ultimate action rests upon decisions arrived at through democratic processes by the people themselves, as in rural zoning, for instance, who is better qualified to sit around the table with the local folks and assist and guide them than the technical men who are objectively studying that county, who know what zoning involves, what it can and cannot do there? In fact, is not the technique most likely to bring the action now so urgently needed in many situations that technique which, from the very start, regards research and the educative process as essentially one joint process wherein the thinking of the people is developed step by step as research yields results, first on this phase of the problem, then on that phase, and in which some of the local people even do some of the research? Education by participation usually carries conviction.

To the processes of agricultural democracy now gaining momentum through discussion groups, county planning committees,

etc., we research men owe a duty of active participation to help that democracy succeed in the solution of its problems.

Obviously we research men must not become apologists and justifiers of the policies and practices adopted on the action side of the program when such policies and practices are not defensible. Clearly, one of the most valuable functions that the research group can perform is that of constructive critic—but I do not think that working side by side with the action-taking people need make the research personnel mere defenders of the established faith. Nor do I wish my remarks to be misunderstood to imply that all land use research must be of the kind that yields quick results, or of the kind needed to answer immediate operating questions, or that it should all be localized. To cite just one example: One of the great dangers in a land-use program is that our preoccupation with use-classification of land in a given county, say, or with the location and broad background planning of a resettlement project, may cause us to overlook the fact that the whole county or proposed project area may be affected by slow but nevertheless sure basic physical, economic or social forces, which in a decade will cause that area to "go out" completely. The future of specific areas is no mere academic question in an action program. Consciously or unconsciously a decision on that point is made every time a purchase project is located, every time a use-district classification of land is arrived at. Obviously the only valid basis for the judgments which must be made on that point must needs rest upon painstaking, able research of the most broad, time-consuming and fundamental kind, involving factors of national and even international scope. The studies recently undertaken by the Bureau of Agricultural Economics in interregional competition and comparative advantage, for example, attack a problem which is vital in sound land use planning. That kind of fundamental research must be done, but it, too, to be usable in an action program in land use, must finally be given application to specific regions and areas.

Not only must those of us who want to see our research eventuate in action orient our work to the planning point of view, focus our techniques on the problems of specific areas, and maintain the closest possible working relations with those who actually do the acting, whether they be administrators or the local people, but we shall have to be more concerned in our thinking and in our working with ways and means, methods and measures for giving practicable effect to what we consider sound land use principles, plans and practices. We must now help to answer the

further question, "*What* shall be done, and *how*?" "Education" is an important method, but we have learned that reliance upon that alone is not enough. Too much of the needed action in the field of land utilization, if it is to be effective, goes beyond the power of individuals acting alone. Hence, we must carry our research into the field of directional measures, social policies, governmental and quasi-public instruments and devices. Public purchase, modification of tax delinquency and reversion laws to facilitate public ownership, rural zoning, conservation districts, quasi-public cooperative grazing associations, credit policies and practices, drainage and irrigation districts, differential taxation —all these and a number of others must now come within our purview. And new types of effective social instruments remain to be invented. The law and legal institutions, governmental organization and structure, public administration, must be brought into the picture.

The observations just made lead to another important requirement if research in land use is to eventuate into desirable action —the necessity of genuinely cooperative, integrated research between the now highly specialized fields. That necessity has been well emphasized in the report entitled, "Suggestions on Training for Rural Land Use Planning," published in the July, 1936 issue of the *Land Policy Circular,* from which I quote:

"Reorganization of the use made of the basic resource, land, necessarily involves the question of possible reorganization of the entire economic, social and governmental structure of the area. The 'human resources' consideration is a vital element, usually *the* vital element. Hence, rural land-use planning involves much more than land alone, but the term is appropriately descriptive, since the land is usually the basic productive resource upon which the economic and social structure of the area is primarily dependent. . . .

". . . the problem presented either to a research worker wishing to make a realistic analysis and sound recommendations, or to an action agency desiring to 'do something' about an area in which an obvious maladjustment in the use of land resources exists or threatens, is a complex one, in an effort to solve which it is necessary to call upon many specialists to contribute. In doing so all traditional lines of demarcation between specialized fields are likely to be cut across; in fact, an action approach which does not do so is probably doomed to ineffectiveness. A complex of interrelated factors is involved in the existing situation; this interdependence, however, is the essence of a workable way out of that situation. A diagnosis of what is 'wrong' or 'bad' or 'maladjusted' about a sparsely settled cut-over territory in the northern portions of the Lake States, for example, requires careful consideration of topography, climate and soils; of farm organization, management and practice; of the forest, wildlife, and recreational resources; of engineering problems; of law and legal institutions;

of banking and credit; of the relation of the farm set-up and its operations to the rest of the economic structure of the area (e.g., farmers may do part-time farming by working part time in mines, forests, etc.), and the status of the outlook for that economic structure; of the composition, characteristics, attitudes, etc., of the population itself; of the 'human resources,' etc.; of the structure, organization, services, costs, etc., not only of local government but also of certain phases at least of state government (e.g., states through their grants-in-aid may heavily subsidize an area); of the relative levels and content of living of the residents; of rural social institutions; of alternative economic and social opportunities for the resident families, and so on. Judgments as to what might be done to devote that land to a better use and provide a more adequate alternative for its population necessarily include considerations involving the whole range of natural and social sciences—and much that lies outside the realm of science in the realm of an art. Land-use planners to succeed in getting things done cannot eschew the field of so-called practical politics.

"An actual workable land-use planning project will call for contributions from many highly specialized fields, but the contribution and performance of each must clearly be a part of a synthesized, coordinated whole, for what is done in one segment of the problem usually affects what is, or what can be done in other segments. To the criticism that rural land-use planning thus appears to embrace the universe, the answer is simply that the problem itself makes it so.

"To hold, as has at times been suggested, that the proper procedure is to have a soils man, a farm management man, a specialist in government and taxation, a rural sociologist, a land economist, an agricultural engineer, and other specialists go into an area and each make a more or less separate analysis to be coordinated at the end of the study, has been demonstrated by experience to be an inefficient, ineffective, and usually futile procedure. The problem must be attacked as a whole, simultaneously on all fronts, with constant cross-checking of its interdependent elements, and with all workers operating as a team under a planning leader who can at all times see the problem as a whole, can keep in mind the goal of a practical, workable plan, and can coordinate, weigh, and balance the activities of the specialists toward that end."

That planning leader must be the type of person that Dr. A. G. Black has so well described as a "generalist."[2] And there is no better way of breaking down the largely self-erected barriers between specialized fields that Dr. Black has so well described, than to throw the specialists together into a team and confront them with the problem of developing a workable way out of the mess that so many of our rural areas are in, nor a better way to develop that basis of mutual understanding and appreciation of the place and possibilities of one another's fields of knowledge which is such an essential requirement.

In view of the general topic designated for this session, it

[2] JOURNAL OF FARM ECONOMICS, November, 1936.

seems especially in point to lay stress upon a field of research whose active participation in any well considered land utilization program is essential. Most certainly an action program in land utilization is not a program for land alone. Its real justification is and can only be—as for all conservation programs—service to the general welfare, now or in the future, and general welfare obviously means human welfare. A land-purchase program, for example, in which rural lands are bought for any purpose—recreation, wildlife, forest, grazing, multiple use, whatever it be—that does not, by one method or another, make adequate provision for the families involved is socially indefensible. The obligation goes further than that—at the other end of the settler relocation line, such relocation must impose neither unfair economic burdens nor unwise social conditions upon either the relocated settlers themselves or upon the communities into which they may go. To do otherwise very likely may mean that a social problem has merely been transplanted, not solved. That problem, in fact, may be made worse, not better. Even in the rural zoning type of approach, the future welfare of the nonconforming users and their families cannot be dismissed from consideration.

Dr. Carl C. Tayler, with his experience both in the rural social field and in the land utilization and rural resettlement programs of the Federal Government, can state far better than I the contributions that the field of rural social research can make to action programs in land utilization; can point out to those of us who look through the glasses of the economist, the things our kind of lens distorts or fails to let through at all.

Nevertheless, those of us who approach land-use planning through the economics route repeatedly run squarely into problems which even we mere economists can see require the services of our fellow workers in rural sociology to solve. Just take, as one example, some of the social problems we get into in the work of land classification and the delimitation of land-use "problem" areas, a line of work which appears to us to be well nigh indispensable as the factual foundation upon which to apply and build all types of land utilization action programs. Following the work done under the National Resources Board in the delimitation of land-use "problem" areas—a pioneer piece of work for which we owe the NRB a great debt—the Land Use Planning personnel of the Resettlement Administration, with the fine cooperation of the State Agricultural Colleges and Experiment Stations and other agencies, endeavored to recheck, revise, and refine the earlier results of this work to the full extent that available infor-

mation and resources permitted. Admittedly imperfect preliminary reconnaissances, these problem area maps nevertheless provide at least some guide to the location, extent and character of land use maladjustments and to the line or lines of action for adjustment that seem to be most needed. In particular, they should provide some guide to the location of land purchase projects and of areas that appear worthy of further consideration for settlement or closer settlement. Having in general gone about as far in that reconnaissance type of exploration as seems practical with the information available, the Land Use Planning personnel, again with the excellent cooperation of the states, has now begun the job of intensive use—district classification on an area basis—begun, in other words, the job of building a land-use classification map of the United States from the bottom up.

But the very concept of land-use classification involves some very basic assumptions, express or implied, as to standards of living, for example. And what about the human resources in these various land-use "problem" areas—their "population characteristics," shall we say? Population shifts and trends, mobility, stability or instability, and the like, and the apparent reasons therefor? What kind of folks are they, where did they come from, how long have they been there, what are their occupational background and history, what their age, physical and mental characteristics, nationality, religious affiliations, their aptitudes, aspirations, habits and customs, attitudes, social psychology, the kind and character of their social institutions? Is not some sort of a "human resource classification," so to speak, as essential a set of data to have as a natural resource classification, for working out sound lines of remedial action? And certainly the characteristics of the different classes of individuals found in these various land use problem areas will not only necessitate modifications in the general line of remedial adjustment agreed upon as desirable, but may very well require the adoption of a number of equally important concurrent policies and programs of action. Analysis of the families occupying lands now being bought out by the Resettlement Administration shows on a number of projects, I understand, an unexpectedly large number for whom, because of age, physical infirmities, mental handicaps, or other reasons, relocation as full-time commercial farmers is out of the question. What to do for such a group constitutes a social problem of real importance as a practical operating problem in the Resettlement Administration land program, on which, so far as I know, very little work has been done. And within the

groups of people who are able-bodied, a different line or lines of action may very well be required for the young people than for the older folks.

But it isn't necessary to go further on this point, which, in view of the central problem in land utilization being that of readjusting the relation of *people* to land and associated resources, seems, after all, pretty obvious. It seems high time that the land economist and the rural sociologist really get to understand each other and begin to go down the road together.

Assistant Secretary of Agriculture M. L. Wilson often emphasizes the importance of "the customs and the habits of the people" in the planning and carrying out of action programs. We research men have our customs and habits, too: as a professional class, as members of a particular profession, and even as supporters of different schools of thought within the same particular profession. As important, I suspect, as the kind and quality of our special methods and techniques are the way we organize and use those various tools, the point of view we take in the process, the end and purpose to which we direct their use. Orientation of our work to the point of view of planning for action—for frankly experimental action, at any rate; focusing our techniques on the problems of specific areas; the maintenance of very close working relations with the people who do the acting; carrying our work clear through to the ways and means of giving practical effect to our suggestions and recommendations; and the teaming up of the land economist, the farm management man, the rural sociologist, the engineer, the soils man and the agronomist, the political scientist, the lawyer—all these considerations seem essential if research in land use is to bear fruit in effective action.

Discussions

J. B. Kohlmeyer, Land Planning Specialist for Indiana

The hypothetical situation which Dr. Taylor has used to illustrate social aspects of land adjustment problems has made the case seem more complicated than may actually exist. In the light of my own experience, I am convinced that many people who must adjust to new locations as the result of our submarginal land purchase program have more ability and opportunity to adjust than may have been indicated in Dr. Taylor's paper. The purchase of their equity in poor land has frequently offered their first opportunity to make an adjustment in their location.

An alternative to our land-use adjustment project is to leave the problem entirely alone. I am convinced that the present social considerations are only a part of a larger problem. In deciding upon the type of land use adjustment, both the land economist and the sociologist (who, in my opinion, could be one and the same person) must decide whether or not

the proposed adjustment will result in a net gain, not only to the present generation, but also to succeeding generations who must rely on the land resources for a livelihood. The immediate population adjustments which may be necessary in order to accomplish long-time land use adjustments may be gained only at the cost of increased individual distress on the part of some of the people. We may as well recognize this fact. However, if this price of adjustment prevents a constantly recurring economic waste with which succeeding generations of users of this same land would certainly be confronted, then the entire program may be very much worth while.

C. A. Wiley, University of Texas

It is my opinion that Dr. Taylor has unduly complicated the situation which he has presented. The land economist would not attempt to decide upon the number of families that could be supported without also deciding upon the economics of institutional service that must be provided. If the cost of providing necessary institutional service were extremely high, the land economist would, of course, recommend that such areas of land could not be advantageously used.

L. H. Hauter, Resettlement Administration, Region XII

I should like to raise the question of how far we should go in a government program of land use adjustments and relocation of people. We have had experience in our region of handling resettlement problems with two extreme policies. In one case, we made an effort to resettle every family affected by our land-purchase program. We now feel that this policy was not satisfactory. In the other case, we have not resettled any one. In this particular case with the results seem better than in the case just mentioned. The feeling in this project on the part of the land owners was that the government did a great favor to pay them for their equity in this extremely poor land. The solution to resettlement and relocation problems lies somewhere between these two extremes.

George Wehrwein, University of Wisconsin

I would like to register an objection to the marked differentiation between the economist and the sociologist which Dr. Taylor has made. An economist must take into consideration sociological aspects and the sociologist must take into account economic problems if either are to work effectively on the problems of land use and social adjustments. Our research technique must be made more flexible and must be adapted to the problems at hand if we are to increase our effectiveness in approaching the problems of land use with which we are confronted.

C. E. Lively, Ohio State University

So far we have discussed only situations that may be created through land-purchase projects. I am anxious that this discussion be directed toward more fundamental considerations. Problems of population redistribution will not be caused by purchasing a few million acres of land. The real problems are found in policies that will help in establishing national policies of population redistribution.

It seems to me that we have three alternatives from a national viewpoint: first, to leave the people where they are; second, to bring in new resources; or third, to develop a national policy of assisting migration. If

we are to attack intelligently the problem of adjusting population to resources, we must develop sound policies of migration toward which all programs of action may be directed.

G. F. Warren, Cornell University

New York State is celebrating its fiftieth year in buying land not suited to agricultural purposes. We have now purchased over three million acres of land with no attention given to a program of assisting the people to resettle elsewhere.

There are, however, essential differences with which the people in New York State are confronted compared to other areas in the matter of relocation. In the first place, our people do not have to move long distances to find other opportunities. Second, New York State has purchased land only when the seller was ready. By this procedure, the seller has found a solution to his relocation problem before he offers his land for sale.

Records taken from four hundred people who have sold their land to the State of New York show that there were none but what were glad they sold their land when they did. This survey was taken ten years after they had sold their land. If no nearby opportunities were available, the policy of New York State would not have worked. In any public land purchase program, it is desirable to have the maximum decision made by the people themselves. The infiltration type of resettlement has many advantages over community type of resettlement, and, in my opinion, should be followed whenever possible.

Rex E. Willard, Resettlement Administration

The physical and economic capabilities of land have been ascertained in many instances, and likewise exhaustive studies have been carried on with respect to mobility of rural populations, costs of living of rural people, community patterns, and social institutions. If the goal of planning in rural areas is the general welfare of the people in these areas, it might be reasonable to expect that activities in the field of research, and social and economic adjustment as a result of this research, should receive the joint consideration of those engaged in a study of land economics and those engaged in the social field.

Is it within the realm of thinking that researchers in the field of land utilization and in the field of rural sociology might be brought closer together in the actual research process so that the objectives sought by each may be more nearly attained through joint action than through separate endeavors? It seems evident that the needed answers cannot be found in either field by itself, and therefore, we would respectfully raise the question whether or not the work that is being carried on in the two fields cannot be carried on under joint or mutual thinking from the inception to the conclusion. This does not imply that the respective fields of activity necessarily lose their identity and become merged into one field.

By the very nature of the adjustments which might be effected, area considerations are implied. Is it not desirable that these two fields of activity move side by side in such a manner that the research activities of each be so closely coordinated that the conclusions thus arrived at are greater in the aggregate than the sum of the conclusions arrived at by each group separately?

HISTORICAL ASPECTS OF AGRICULTURAL ADJUSTMENT

THE HISTORICAL APPROACH TO THE ECONOMIC PROBLEMS OF AGRICULTURE[1]

H. C. TAYLOR
FARM FOUNDATION

This program dealing with agricultural history is important not so much because it calls attention to the interest and the importance of that part of our national history which relates to the changes in agricultural production and modes of life of farm people, as because of the importance of the historical method of approach in the study of the economic problems of agriculture. I have noted through the years that those students of agricultural economics who have confined themselves largely to the use of the deductive method have arrived at conclusions quite out of line with the practical thinking of the times. The theoretical approach is useful in providing working hypotheses as a starting point in research. If these hypotheses are looked upon as conclusions, research is dead; but if looked upon as a starting point in the use of fact gathering and fact analyzing methods, they can be invaluable. Likewise, those students who have specialized in the statistical method have often failed at well-balanced conclusions. The statistical method is invaluable for the contribution it is capable of making, but as a rule, it can bring into the picture only a part of the facts.

Farm accountancy has made very important contributions, not only by providing a certain amount of statistical material, but by giving the fact basis for a much closer analysis of the details of farming activities and their inter-relations. But, agriculture is not a static thing; it is ever changing, and for this reason, an analysis which gives a clear picture of the type of farming that pays best at a given time and place is not in itself a trustworthy basis of deciding what we should do in the future years.

The historical method is invaluable because it brings a dynamic point of view to bear upon the materials with which the accountant, the statistician, and the logician may be working; furthermore, historical study helps the student of agricultural economics to appreciate the many subtle forces which may be at work at any given time, which are not subject to analysis by the account-

[1] Statement made at the opening of the Joint Session on Agricultural History at the Twenty-seventh Annual Meeting of the American Farm Economic Association Meeting, Chicago, Illinois, December 28, 1936.

ant or the statistician, and which have been usually overlooked by the logician while formulating his hypothesis.

Every agricultural economist should be a student of agricultural history. It will be wise, of course, to have specialists devoting themselves to research work in this field in order to make new contributions to the subject, but every agricultural economist should familiarize himself with the well-known facts of agricultural history. Research upon any particular topic such as the problems of tenancy and land ownership, problems relating to the choice of farm enterprise in a given area at a given time, and problems relating to the marketing of farm products, should always include the contributions obtainable by the use of the historical method as well as the accounting, the statistical, and the logical methods. It is not safe to depend upon any one method if the research worker would arrive at dependable conclusions.

I am convinced that we have given relatively too much attention to accountancy and statistics, and too little attention to the historical method, in studying our various farm economic problems. It was with the hope that special emphasis might be given to the importance of the historical method that I suggested to the president of the American Farm Economic Association the importance of having a session upon this subject on this occasion.

No student of agricultural economics should be without a clear picture of the progress of American agriculture from colonial days to the present time. He should know the kind of soil the Colonists found when they arrived in New England and in Virginia; the kind of implements they used in tilling the soil; the kind of plants they produced; the effect of the potential farm enterprises upon the type of agriculture that developed; the westward movement of farmers; the expansion of wheat growing; the westward movement of the sheep and cattle industry; the expansion of the cotton belt; and the changes that were wrought upon agriculture in the eastern part of the United States, and in Europe, as the Mississippi Valley and the western plains were brought under cultivation and the products commenced to flow over a network of railways into the markets of the world.

It is important also to know the history of the national economic policies used to develop the "home markets" and the ultimate effect of these policies upon the farmer's foreign markets. Not only should every student of agricultural economics have this general historical picture clearly in the background of his mind while taking up any piece of agricultural economic research,

but he should study the special phases of history which relate to the particular problem with which he is dealing.

In the light of the historical setting, the accounting and statistical materials will possess their greatest value, and the generalizations drawn may be of greatest value.

A CENTURY OF ADJUSTMENTS IN A NEW HAMPSHIRE BACK AREA[1]

H. C. WOODWORTH
UNIVERSITY OF NEW HAMPSHIRE

This paper undertakes to present a study of a back country area in which agriculture has declined for many years until it has now almost disappeared. The first section briefly relates to adjustments from 1800 to date, the middle part to a description of present conditions, and the last to certain aspects of future adjustments.

In the land-utilization study for which the data were collected, the New Hampshire Agricultural Experiment Station has emphasized a description of present problems in this area with a view to the formation of state land policies. The historical aspects have received attention only incidentally, but they become intriguing as one works on the problems involved in this back area of an old settled country.

The area under consideration is located in western New Hampshire in southern Grafton County and has been declining in agricultural importance and in population for nearly a hundred years. Adjustments are still in process. A present land-use map of the state indicates many areas in which no commercial agriculture appears. Some of these areas, such as the large one in the north, are mountainous and were never cleared and settled. Other sections were once thickly populated and farmed, but have declined greatly in population and farming activity since the Civil War. Such an area is the rather large space in southern Grafton County, back from the Connecticut River and comprising portions of fourteen towns. Data taken from H. F. Walling's map printed in 1860 indicate the roads and location of farmsteads at that time. The roads pierced nearly every section, and farmsteads were fairly evenly distributed. Only rough mountainous areas were untouched. Abandonment of certain locations had begun as early as 1840, and probably the roads and farm-

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association, Chicago, Illinois, December 28, 1936, in Joint Session with the Agricultural History Society.

steads were at that time even more extensive than shown on the map. Professor Goldthwait of Dartmouth College states that he has found 28 cellar holes in Lyme not indicated on the Walling map.[2]

A comparison with the present agricultural map indicates that this interior upland has suffered more severe declines in farming activity than the region in or near the valleys. The area as delimited contains approximately 175,000 acres or 273 square miles.

On the whole the terrain is rather rough and bold. Within the area are Mount Cardigan, 3,121 ft. elevation; Mount Cube, 2,914 elevation; Smarts Mountain, 3,240 elevation, and several lesser mountain ridges. There are a few small level intervales at about 1,000 ft. elevation but most of the fields and former fields are on the tops or sides of ridges or on broken upland. Rocks except on the intervales are numerous and impede cultivation.

The soil is variable as in most parts of the state. Fine sandy loams, stony loams, stony rough land, and soils too wet for hoed crops may be found. In general many of the tillage fields are good loams and are capable of supporting good yields if managed with livestock and lime. They are difficult to work with modern machinery and depreciate rapidly if not well managed. Some of the abandoned roads lead up the mountain sides to former locations where the fields must have been very small and difficult to work. The occasional farm which has been operated aggressively with a full stock of cattle has good yields at the present time.

Soldiers passing through in the Indian Wars of 1760 had taken an interest in the possibilities of the region. Some of these returned as settlers within the next few years. By 1772 the interior was well settled. For the next 30 years the clearing of land and establishment of homes were pushed with vigor. The first development was a self-sufficing agriculture, but as more tillage land and pasture became available on some farms, additional products were raised for sale. Many farms never developed beyond the self-sufficing stage, and some of these were not occupied for more than 30 or 40 years. Fat cattle represented the principal enterprise in the early 1800's, but beginning about 1828 the sheep industry developed rapidly. In 1834 production in the area was probably at its peak. Land clearing had been

[2] J. W. Goldthwait, "A Town that Has Gone Downhill," *Geographical Review*, 17:527 (October, 1927).

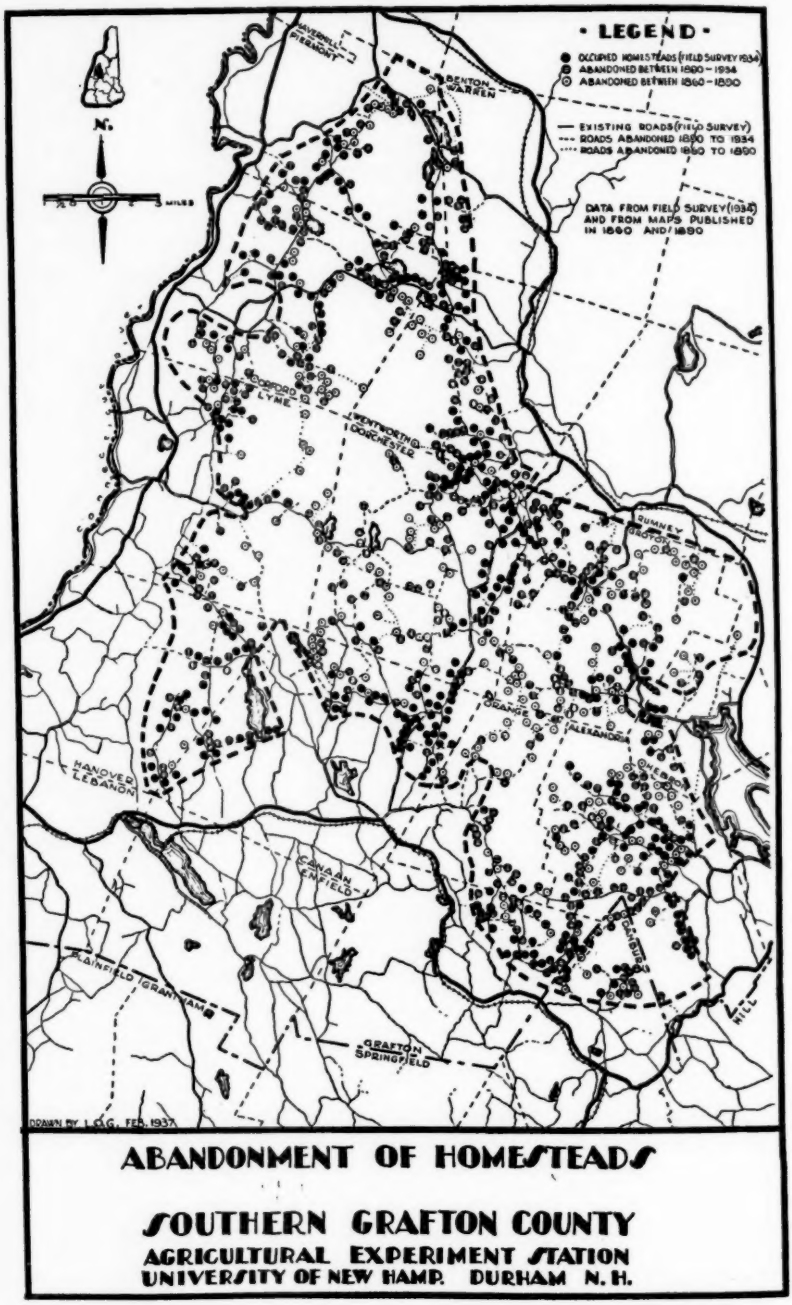
extended, and cattle and sheep farming were established to the limit of the land resources. The better soils were still fertile, and crop yields were good. The trend of conditions in back areas is difficult to trace from this point on because many towns comprise intervale lands that persisted in agricultural use as well as back uplands that were abandoned. Total data or averages such as census reports fail to describe either situation. Industrial developments in some of the villages resulted in rapid expansion of population and creation of markets which obscured the situation in other parts of the town.[3]

In the earliest times the advantage in location was not great. Self-sufficing agriculture and the work of clearing meant that most activities were centered on the farm, and trips to market were infrequent. It is said that the hills were settled and cleared first because the clearing was easier and the location was preferred for safety. But as agriculture advanced to a stage where some operators were able to sell products and as local centers in the valley became trading posts, the location of the farm and the quality of the land became more important. With the completion of the fourth New Hampshire turnpike from Boscawen to Lebanon in 1804, the Grafton turnpike from Andover to Orford in 1811, the interior upland was placed at a disadvantage. The extension of the railroads up the valleys on both sides of the area in the period 1847 to 1853 gave the valley farms more satisfactory access to the expanding markets in factory towns of Massachusetts.

Later on, competition with the standard products of the developing West brought hardship to the agriculture of the region, but the valley farms were able to take advantage of the nearby markets. Technological developments of agricultural production placed the hill farm with small rocky fields at a tremendous disadvantage.

A comparison of the location of roads and occupied places in 1860, 1892, and 1934 reveals the trend and location of abandonment. Only 291 of the 916 locations existing in 1860 were occupied by year-round residents in 1934. Using the population-to-farm ratio in Groton as a base it is estimated that the population in the area was approximately 4,700 in 1860 as compared to 883 in 1934. It is further estimated that at the peak of the livestock population, the area supported 5,500 cattle over 18 months old

[3] Edward N. Torbert, "The Evolution of Land Utilization in Lebanon, New Hampshire," *Geographical Review*, 25:209 (April, 1935).
Harold F. Wilson, *The Hill Country of Northern New England* (New York, 1936).



Of the 916 homestead locations in 1860 only 291 were occupied in 1934. (Summer homes not included)

and 21,068 sheep over 6 months as compared to 957 cattle and 167 sheep of similar ages in 1934.

In surveying the forest cover in some detail in the town of Dorchester, Mr. Carl Walker was able to map the areas of land which had been originally cleared in comparison with present land-use.[4] This indicates 43 percent cleared about 1860 as compared to 13 percent in 1934. Forest growth is the natural climax in New England and has taken over the land to a large extent. The old cellar holes, the lilacs and rose bushes, the stone walls, the old mill sites, the small cemeteries are mute evidences of the former habitation. This recession of agriculture is illustrated in the data taken from town inventories: for Dorchester from 1801 to 1936, and for Groton from 1834 to 1936. These two towns were chosen for this purpose because the records were available and because both towns lie very largely within the area studied.

The Dorchester inventory shows that six farms had developed beyond the self-sufficing stage as early as 1801, having over 10 animals of the cattle kind. Sheep do not appear on the town inventory in 1801, 1810, and in 1820, and probably none were present. In 1830 the inventory reveals only one flock of sheep —90 head, but by 1840 the sheep industry had developed amazingly. In that year the inventories indicate 2,917 in Dorchester and 2,887 in Groton. This is one instance in which the New England farmer forgot his conservatism and followed a "boom" due to the high wool prices and the general sheep craze. One might easily conclude that all the farmers had taken up the sheep industry, but the inventories indicate that some men held on to cattle.

It is suggested by several writers that lands were cleared rapidly for pastures between 1830 and 1840 and also that clearings on the few abandoned farms were reoccupied. At the very peak of livestock population probably the pastures were overgrazed. The farmers were utilizing a sort of flush period that exists for the few years when the fertility in the forest humus is first set free.

Reduced pasturage and the falling prices of wool brought reduction in sheep numbers. Some operators went out of sheep quickly, and others maintained large flocks even as late as 1890. Evidently individuals, in the light of their peculiar resources, farms, skills, and interests, reacted differently to the changing economic situation.

[4] Mr. Carl Walker, graduate forester, by noting stone walls, tree growth, etc., was able to determine areas which had been cleared.

At various periods in the last hundred years opportunity for labor off the farm has had an influence on the agriculture of the area. For instance, in Dorchester on the Mascoma River from Reservoir Pond to the town line, an area now completely abandoned, the forester reports evidences of six mill sites. No doubt people from local farms had a part in harvesting and milling of timber resources. This local timber industry probably began about 1830 and intermittently has continued until the present. Later on, probably about 1885, mining of mica and feldspar in several sections of the area furnished employment to local farm people and brought in new families.

We have at hand no quantitative data as to the extent of the timber or mining influence in this area in drawing people away from agriculture, but in other sections of the state the development of factories has had a profound influence on the agriculture and the people.[5]

No doubt these opportunities for work off the farm had a different appeal to men in different circumstances. The man at the end of a mountain road with small fields and little resources could well afford to work for wages. When this work ceased locally, he would be quite ready to follow the job to some other location in preference to returning to his small unproductive farm. The assumption is common that in a declining agriculture the more resourceful and abler people get out first. I have the impression that at certain periods the less resourceful were attracted away from the local farms, and that at other times the ablest sought better opportunities elsewhere. I feel quite certain that abandonment of land according to productivity and the migration of people according to ability have not been as "liquid" as some theorists have supposed.

The impact of this migration of young people might not register fully upon the agriculture for a number of years. The movement was probably not due entirely to changes or to discouragement in the local agricultural situation. The developing industrial system, the building of railroads, and the conquest and settlement of the West beckoned attractively to young men of all classes.

The rapid decline in agriculture after 1860 was accompanied by migration of families into as well as out of the area. This change in personnel was probably part of the adjustment process. The movement both contributed to the decline and resulted

[5] Harry C. Woodworth, "Nute Ridge," New Hampshire, University Extension Service, Extension Circular 68, April, 1927.

from it. New families with different resources and capacities were responsible for shifting proportions of labor, capital, and land.

Very few of the present resident are descendants of the original settlers. Of the 85 surnames in the 1840 inventory for Dorchester only Carr, Burley, Eastman, and Smith remain, and this particular Smith is not native to the region. Of the 90 names for Groton only Butterfield, Albert, Bartlett, and Mathew remain.

The present list of operators represents a wide variation in experience and capacity. With a few exceptions their capital resources are meager, and on the whole their inherent capacities are not fully utilized. The blight of decline has come so gradually and insidiously that men's opportunities vanish without their knowing it. After a time a sense of some security even on a very low level is preferred to new adjustments elsewhere coupled with great uncertainty. In age, roughly, one-third of the operators are under 40, another third are over 60.

A description of the present income of the people in the area indicates that the nonfarm activities have grown in importance and reveals a new adjustment of people to their situation.

A summary of 255 records which include practically all actual farms in the area shows a gross income from sales of agricultural nonforest products for 1934 of $73,486. Thus, an area comprising about 3½ percent of the acreage of New Hampshire accounts for only one half of one percent of the state's commercial production. Sales of forestry products from these occupied farms amounted to $17,251.

Against this total gross cash income from sale of farm and forest products of approximately $91,000 must be considered cash farm expenses for grain, taxes, etc., of about $106,000. The deficit between cash receipts and cash expenses, amounting to $15,000, together with the funds needed for living expenses, is made up from other nonfarm receipts of $95,336—over half of the total cash receipts. This indicates the extent to which the farm operators in these back areas are dependent upon work off the farm and on outside income.

This situation in which the people in a rural community receive a considerable part of their cash income from sources not directly related to the farm is characteristic of New England. Near industrial centers the occupants of farms or members of their families commute to jobs in the city. A pattern of commercial and small part-time farms often occurs even in the more intensive agricultural areas.

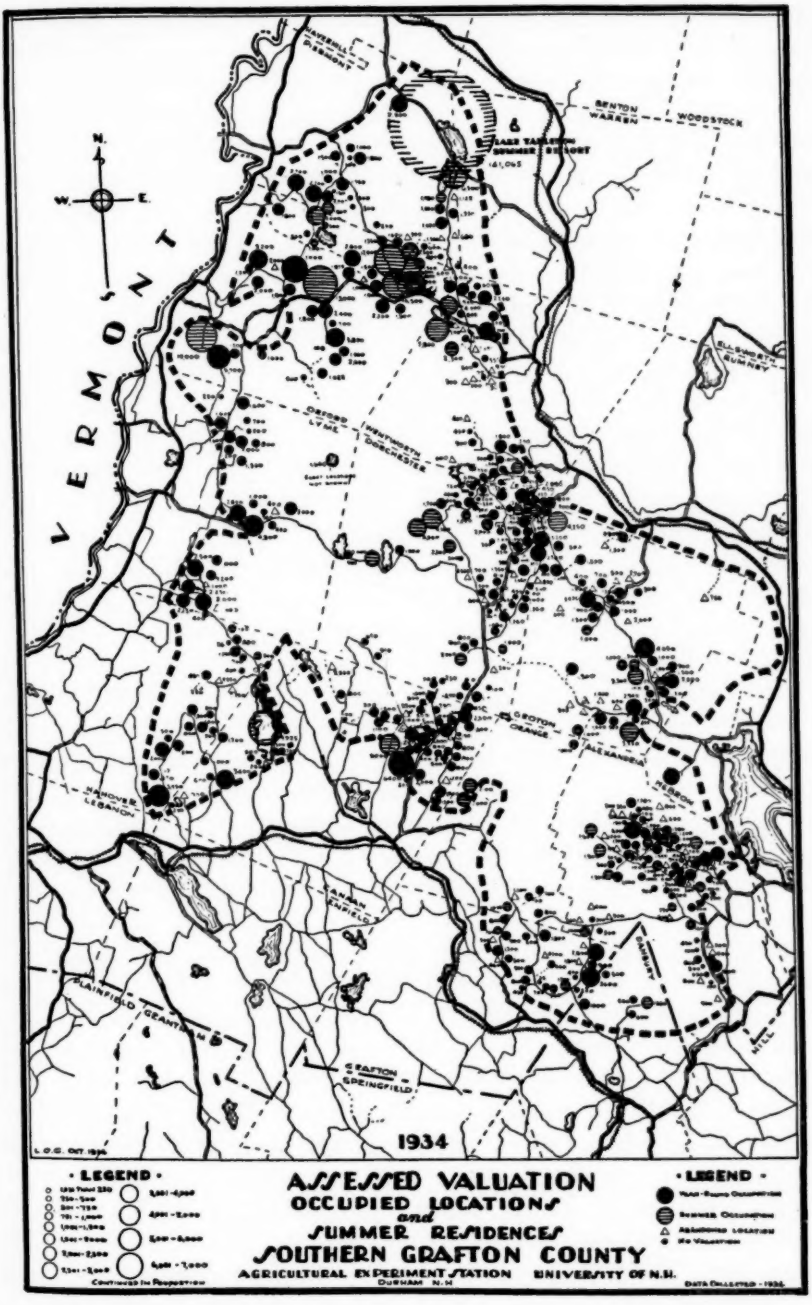
The important difference in these back areas and the more densely settled regions is that in the back areas the total income is very low, and the source of much of the income not associated with farm activities is temporary and socially unproductive. Of the $95,000 received from nonfarm sources $22,417 represents income not related to the location in the area, to the operator's labor, or to the present resources of the land. This consists of gifts from relatives, pensions, withdrawal of savings, insurance, and relief. These sums would be available to the individual if the family moved elsewhere. Of the $73,919 received for labor off the farm a considerable amount was for the building of state-aid roads, construction and maintenance of town roads, snow removal, town offices, and transportation of children. The dependence on income from local tax sources varies greatly with different parts of the area and with individuals. It results from maladjustment of people and institutions to land.

As an extreme case, it might be said of one town without much exaggeration that the chief activity of the local people is centered on constructing and maintaining highways. The roads are expensive to build and costly to maintain on account of grades and hills. The people have abandoned farming and remain to build the roads. They are not usually conscious of the unsocial and unproductive side of the ledger. They have grown up with the situation and most of them work honestly and conscientiously, if not vigorously, for their town.

It is difficult to determine to what extent this is socially unproductive. Roads do facilitate forest management and harvesting. Isolated families do need roads for communication to schools, church, friends, markets, and access to road-building jobs. What kind of road and how much road for forestry purposes are debatable questions. If people are to remain, these roads need to be better than they are. Over a long period it may be a choice between more road and very meager living on the one hand and less road and more abundant living on the other. Local resources can, however, support only about so much.

There has been a radical change in the tax base. With the decline of agriculture and the accompanying shifts in values the occupied places have become less important in the town inventories. In 1840 local residents of Groton paid over 98 percent of the taxes, and this situation was probably typical of the area.

In 1934 the occupied places represented only 14 percent of the total assessed valuation of the entire area. A large proportion of the value of occupied farms is concerned with timberland and represents a resource that is not materially changed by further



The assessed valuation of occupied locations and summer residences by location indicates many low-value farms. Some of these are isolated and require considerable road mileage per $1000 valuation.

abandonment of agriculture. Summer occupancy, abandoned farms, wild lands, and electric transmission power lines are the present important assets in town inventories.

It is interesting to note that in 1834, with all the activity in Groton, the large sum of $830.72 was submitted to the tax collectors. Even as late as 1910 only $3,609 was submitted. For several years now it has been over $15,000. The building of about nine miles of power lines added $173,000 to the town inventory. The tax may be a burden to some interests, but it is a source of income to the local residents.

One cannot endorse the situation from the viewpoint of efficiency in government, and yet the approach to the solution of the problem should be broader than merely a drive for such efficiency. The inefficiencies and misdirected efforts are the result of serious maladjustment. An effective solution will require that an attack be made on the fundamental problem—the adjustment of people and institutions to land.

Of the 255 farms where detailed records are available, 118 or 46 percent sold less than $50 worth of agricultural products, and only 19 or eight percent sold over $1,000 worth. In this latter group of 19 farms the specialized poultry enterprise was most important on three farms. In certain areas of the state, poultry has replaced cattle on farms where tillage is difficult, and this adjustment has checked abandonment; but in the area we are considering there is only a trace of this change. The poultry enterprise is not very definitely related to the use of tillage land. On specialized poultry farms in New Hampshire, all grain is purchased and only a small area of tillage land is used for range in growing pullets.

Since the availability of sites is not the limiting factor in the development of the poultry industry, the problem is one of relating poultry to the best sites. The permanent presence of poultry enterprises in problem areas can be considered quite apart from the crop and livestock farms and given a different emphasis. They may well be encouraged wherever other factors or other poultry enterprises indicate good possibility of the community's permanent continuance.

It is interesting to consider in some detail the 118 farms with less than $50 in sales of agricultural products. The average farm organization of this group can be briefly described as: 57 acres of woodland and pasture and 17 acres of tillage, 1 cow, ½ heifer, ½ horse, 8 hens and .4 pigs. The average value of farms is $914 and the total investment is $1,083.

The total gross income from farm sales and labor off the farm

averaged $315 per farm and consisted of: $20.10 sales of agricultural products, $9.82 sales for forest products, and $285.52 work off the farm.

The expenses in connection with the farms averaged $158, leaving approximately $157 for interest, debts, and living expenses. In addition, an average of $83.46 was drawn on in the form of gifts, savings, and relief. Products used from the farm averaged $148.

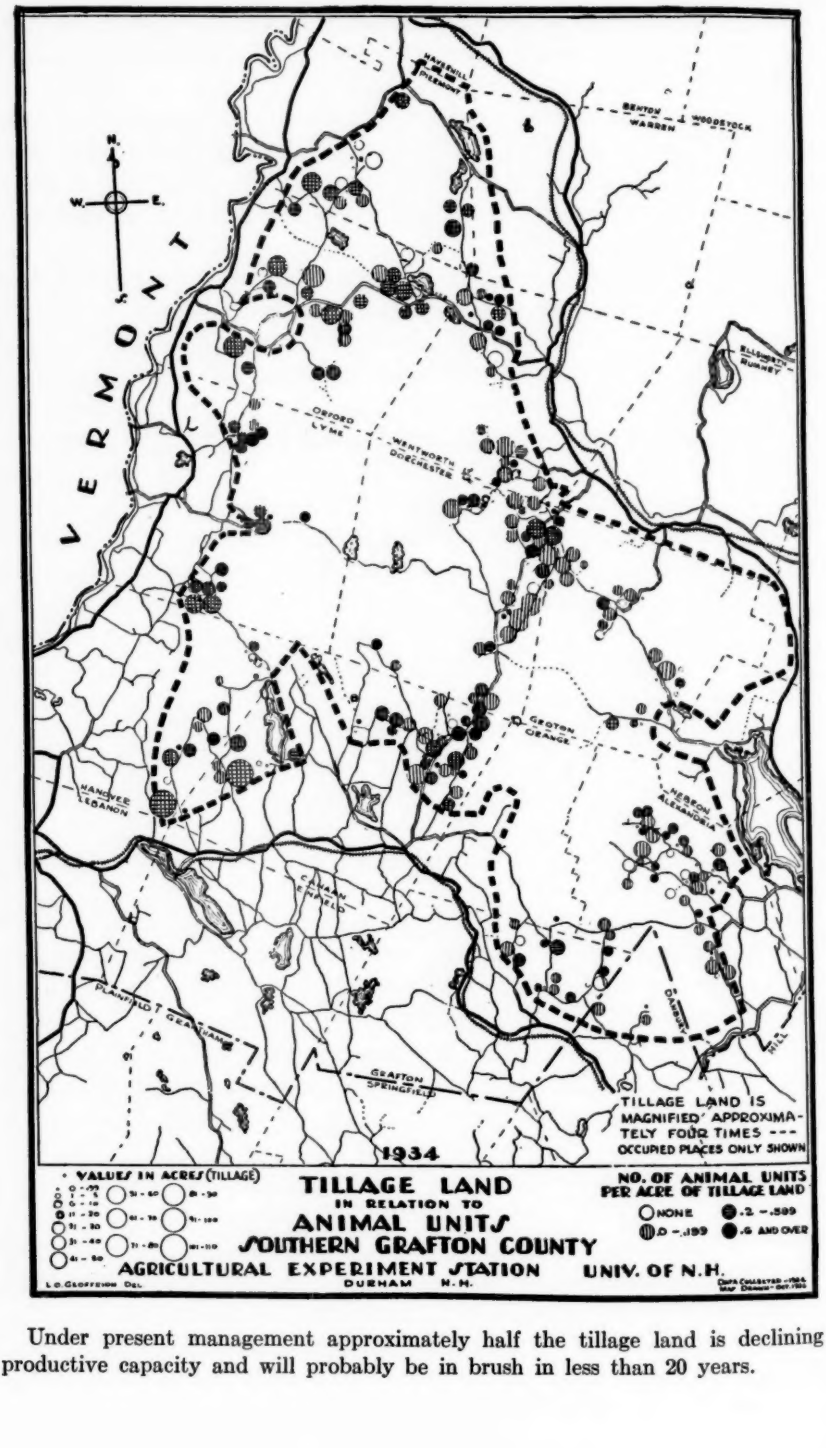
The distribution of individual farms by sales of agricultural products and by total net earned income describes the status of the individual families and gives a better picture of the situation in the region as a whole. These data were, it is true, collected in the midst of the depression, but the status of this group will not be materially improved in prosperous periods. The operators are without the organization and facilities for commercial production of agricultural products. Their timber lots are fairly well culled over, and the opportunity to sell their labor to advantage in this location is not encouraging under present ownership and management of forestry lands.

The relative size of the farm organization on the individual location is further described in terms of the number of days normally required to handle the acres of crops and number of livestock. On this basis the average farm organization represented 74 man work day units, or somewhat less than one-third of a full one-man farm. Twenty-six had over 200 man work units and might be considered as one-man farms. Seventy-eight of the farms had less than 50 man work units and can be regarded as rural residences.

We have followed the adjustments in this area for a hundred years and described briefly the present situation. What of the future? The trend line in agriculture and population has been quite definite for 75 or more years.

1. From the viewpoint of an aggressive commercial agriculture, an agriculture in which men are encouraged by expectation of profits to develop productive farms and build fine herds, most of the farms are not important.

Observation of New Hampshire agriculture leads to the conclusion that most of the tillage fields can be maintained only if associated with livestock. Of the 6,414 acres of tillage land reported in this area 49 percent is associated with less than 0.2 animal units per acre. This tillage land is probably declining in fertility, and one can predict that if present management continues it will be in brush by 1955. It is further estimated that present management results in the maintenance of 44 per-



Under present management approximately half the tillage land is declining in productive capacity and will probably be in brush in less than 20 years.

cent of the tillage land at about present low levels of production and in the improvement of yielding capacity of only 7 percent.

2. On the other hand, our thinking as related to farm economy has been built around the man in the prime of life who can aggressively push productive activities through long hours, if necessary. Unfortunately we do grow old, and can no longer furnish the motive power for such a farm. Many small farms in New Hampshire are the havens of the older men from city and country, both rich and poor. What will be the future trend in migration from the cities and from other rural sections of different classes and ages of people who love the country?

Farms located along main roads in a persisting community are useful and attractive for this purpose even though they have little importance commercially. The problem here is more one of consideration of individual preference and social costs in maintaining the services in roads, schools, and medical care.

3. Forestry is the chief resource of the area, and future adjustments depend greatly on the trend in public and private policy toward the development and management of forest resources on a sustained yield basis. Starting in 1937 with depleted and culled stands and ownership by private corporations and individuals, the ratio of employed population to acres of land is likely to be very low. Under present conditions of management and intensity of land-use there are too many people in the area, and some of them should migrate whenever other opportunities prevail. There seems no immediate possibility of management of the resources as a basis for continuous employment for the capable workers within the area.

Some degree of intensity of management would be socially desirable. Even under very extensive management, labor will be required in logging and trucking, and such labor could be adjusted to the life of the community. This 175,000 acres of land could furnish productive work for a portion of the able bodied men. There could develop a pattern of small part-time farms grouped along the main highways in a commercial forest area. This is a possibility under public ownership or some form of directed or controlled private ownership. We need a positive program of relating population to forest and other resources of the area. Without this positive program of relating people to the forest resources, the local inhabitants are always in an unstable and precarious position.

A few farmers, in addition to their small farming operations,

harvest and mill timber from their woodlots, and this is an adjustment not previously mentioned. This may well be encouraged but there is little expectation of any particular development in this direction.

4. Summer occupancy is another possibility that may have a marked effect on developments in certain portions of the area. Already the summer sites more than equal occupied farms in value. While much of the timber is culled over, in few instances is the land stripped. The general view from many angles is pleasing. Mt. Cardigan, Mt. Cube, the several attractive small lakes, and the generally bold topography offer something to city people. There has been a steady absorption of abandoned or nearly abandoned farms by middle-class city people for summer homes in many parts of the state. We have no basis upon which to predict the future trend of this movement. Are there possibilities of acceleration of movement of certain income groups to desire and seek summer residences? Still more difficult to predict is the development of estates by the well-to-do.

Since the field records were taken in 1934, there has been some development in the back end of the town of Alexandria. Several abandoned homes have been reconditioned. The CCC has built ski trails, and the Appalachian Mountain Club has established quarters. If these developments continue, there opens a possibility of a summer and winter recreational, forestry, part-time farm pattern of occupation that may persist indefinitely.

5. The situation has been developing for a hundred years or more, and we should not expect to solve the problem overnight. The near abandonment of the area has come about through the decisions of hundreds of individuals over the years. Rugged individualism brought men out of the area and into other adjustments elsewhere. It would be interesting to trace the people and their descendants. I have the feeling that most of them did not make a mistake in migrating and that the Nation gained from the realignment.

But this same rugged individualism was responsible for other families getting caught in a trap from which they cannot easily escape and even then perhaps only through the sale of the farm to a new victim. This is too great a social cost and we must help people to work themselves out of it. To the few who would regiment people back into the area to rejuvenate the agriculture, one might suggest the reading of accounts of the hardships and discontent of the population from 1850 on.[6]

[6] Harold F. Wilson, *The Hill Country of Northern New England.*

To those who would bring a people back into an area on the basis of a self-sufficing agriculture, a statement by Walter E. Elliott, Minister of Agriculture and Fisheries of England, to a similar problem seems a worthy answer.

"If we were planning for a complete breakdown of an economic system or for another great war or some other variety of chaos, the safest thing to do would be for all of us to take up our little bits of land and delve and spin like Adam and Eve. Most of us, I should think have still enough of the cultivator's instinct to keep ourselves from starvation. But I think it is wise and better to plan for prosperity than for ruin."

On the other hand while a self-sufficing way of life may be a step backwards, certain individuals or certain groups find themselves unable to make the necessary readjustments to a commercial life and they should not be denied the opportunities of a self-sufficing mode of living providing they choose locations where the social costs in roads and schools are not prohibitive.

By education and discussion I believe the land can be rated by priorities for different uses and the more serious maladjustments taken up first. This may require such directional measures as zoning and assistance to certain badly located families in relocation at their desire. It may include positive steps in the development of summer sites by making the good sites more easily available. The greatest need is to relate people to the forest resources, and perhaps this may require public ownership and management or public control of the wild lands.

THE DEPRESSION OF 1873-79[1]

O. V. Wells[2]
Agricultural Adjustment Administration

I

As economists we analyze the past in order to forecast the future, or at least as an aid in understanding the present. The simplest analysis of this sort is to consider some period in the past as similar to the current period and to infer that the same general sequence or pattern of events as appeared in the past will be repeated in the present.

[1] This paper was read at the Twenty-seventh Annual Meeting of the American Farm Economic Association in joint session with the Agricultural History Society at Chicago, Illinois, December 28, 1936.

[2] Acknowledgement is due Mr. James P. Cavin of the Program Planning Division, Agricultural Adjustment Administration, for assistance in collecting and analyzing the material here presented, especially in connection with Section II. The author first worked on the subject here discussed at the suggestion of Dr. Edwin F. Gay, while a student at Harvard University in 1931-32.

An example of this line of reasoning or method is to be found in the not uncommon comparison of the behavior of wholesale prices in the United States following the close of the Civil War with the situation following the close of the World War.[3] And it is with a significant portion of this period following the Civil War, the period of general depression which began in 1873 and extended into 1879 or early 1880, with which I want to deal. That is, how was American agriculture affected by the depression in the period 1873 to 1880? And to what extent was the situation of agriculture in the recent depression which began in 1929 similar or dissimilar to that existing in 1873?

II

After the Civil War drew to a close in 1865, wholesale prices in the United States entered upon a long decline which merged after 1873 with a world-wide decline that continued until about 1896. The pressure of a gradually falling price level, however, did not prevent the United States from enjoying a fair degree of prosperity in the years 1868-73. The output of physical goods moved steadily upward, agricultural reconstruction went forward in the South, agricultural exports increased, railway mileage almost doubled, and the number of immigrants reached a new high level. For the money market, however, the whole period was characterized by high interest rates and recurrent periods of stringency, especially in the fall.

This upward movement came to an abrupt halt at the end of the summer of 1873, as the banking community discovered that it had reached a saturation point in the flotation of new securities and that the railroad system was overbuilt. The crisis was precipitated on September 18 by the failure of the well-known firm of Jay Cooke & Co., which had over-extended to the Northern Pacific Railroad. Nineteen other houses failed on September 19, security prices collapsed, and the New York Stock Exchange closed on September 20. As the panic spread, currency payments were suspended, clearing house certificates were issued, and credit became difficult or impossible to obtain.[4]

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[3] See Figures 5, 6, and 8 in the discussion of business conditions by G. F. Warren and F. A. Pearson contained in FARM ECONOMICS, No. 69, February, 1931, and Figure 31 in Section II of "General Conditions and Tendencies Influencing the Nation's Land Requirements," Part I of the Supplementary Report of the Land Planning Committee to the National Resources Board, Washington, D.C., 1936. The caption under the National Resources Board chart reads: "So far, the postwar decline in prices of farm products has duplicated in large measure the decline of agricultural prices after 1864. If this parallelism continues, higher prices for the full year 1935 would seem likely with some noticeable decline after 1936. . . ."

[4] This account is based on Persons, Tuttle, and Frickey, "Business and Financial Conditions Following the Civil War in the United States," *Review of Economic Statistics*, Preliminary Volume 2, Supplement 2, July, 1920. Some interesting comments also are to be found in Wells, D. A., "Recent Economic Changes," New York, 1895, Chapter I.

This crisis in the United States soon communicated itself abroad, where the end of the promotion mania which had swept Central and Eastern Europe during the preceding three or four years already had been signalled by a panic on the Vienna bourse, which had spread to Germany, and to a lesser extent, to France and England. The European reaction to the American crisis was violent. Panic again broke out in Vienna and Berlin, and the discount rate of the Bank of England was raised to 9 percent.[5]

These monetary crises in the fall of 1873 were followed by a world-wide depression which lasted almost until the end of the decade, and by a gradual but equally widespread fall in prices, which (after some recovery in 1880-82) continued until 1896. There was, at the time, the usual disagreement as to the causes of the depression and the remedies which should be applied. At least 180 different causes were advanced by witnesses appearing before Congressional committees which investigated the causes of the depression in the United States. The Dutch found that the fall in the price of German vinegar was an important contributing cause, while excessive speculation, the falling off in the production of wine, and the disappearance of fish from the coast of Brittany were among the causes advanced by the French. In 1885, a British Royal Commission succeeded in reducing the major causes to six, one of which was overproduction. And it is interesting to note that the Oxford Prize Essayist for 1879 already had found the "real and deep-seated cause" in the fact that "the whole world is consuming more than it has produced."[6]

In retrospect, it appears that the crises were largely traceable to the financial excesses which had characterized the five or six years preceding 1873. Governments and individuals borrowed to finance undertakings of almost every sort, especially railroad construction. The United States, Turkey, Egypt, and South America were supplied with funds from England, which loaned over 1.5 billion dollars in the brief period 1870-74, while Russia, Austria, and Italy were supplied chiefly by Germany, to whom France paid a war indemnity of five billion gold francs between 1871 and 1873.

With the first scare, both stock and commodity prices fell, bonds went into default, over-extended bankers failed, and credit began to contract. This cyclical recession was, in turn, drawn out and over-emphasized by a decline in wholesale prices brought

[5] For the chronology of the crisis, see Thorp, W. L., Business Annals, New York, 1926, and Clapham, J. H., "An Economic History of Modern Britain," Volume 2, pp. 379-83.

[6] For contemporary opinions of the causes of the depression, see Wells, *op. cit.*, pp. 19-26.

about by a continued increase in both agricultural and industrial production, and by a relative decline in the production of gold, accompanied by special demands for gold as France took steps to increase her reserves and Germany and the United States went on a gold standard. As Clapham indicates, "... The after effects of the crises of 1873 were naturally confused with the early stages of the commodity price fall ... which began among them but was not in any true sense their consequence. A fall from the level of 1872-73 was inevitable and was anticipated; but a ten-year fall, which grew into a twenty-year fall, was outside the experience of the generation which had to bear it."[7]

Actually, although both agricultural and nonagricultural prices trended downward from 1873 to 1879, and although domestic bank clearings and interest rates averaged only about two-thirds of the predepression level, commerce, industry and agriculture in the United States were by no means in as depressed a state as is often supposed. Manufacturing output was maintained at about the same level, while mineral production increased slightly and agricultural production averaged 20 percent higher than in 1873. Even though the prices of railroad stocks were cut in half between 1872 and 1877,[8] and almost 800 million dollars of railroad bonds were in default in 1875,[9] the construction of new mileage continued at about 35 percent of the high annual rate which was set in 1870-72.[10] And finally, the average annual value of exports increased from slightly under the 400 million dollars in 1868-73 to over 600 million dollars in 1874-78, while imports remained stationary at about 500 million dollars, so that our international balance of trade was changed and the Treasury was able to resume specie payments on January 1, 1879.[11]

III

The combination of available land with the rapidly growing population, the westward expansion of the railroads, and the improvement in agricultural machinery which the war had stimulated was forcing a rapid expansion in agricultural acreage

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[7] Quotation from Clapham, *op. cit.*, p. 383. This and the preceding paragraph are based on Jenks, L. H., "The Migration of British Capital to 1875," New York, 1927; Feis, H., "Europe the World's Banker 1870-1914," New Haven, 1930; and Monroe, A. E., "The French Indemnity of 1871 and Its Effects," *Review of Economic Statistics*, Preliminary Volume I, October, 1919. The price fall of 1874-96 is succinctly described and analyzed in Layton, Sir W. T., and Crowther, G., "An Introduction to the Study of Prices," London, 1935, Chapter VIII.

[8] Matthews, A. M., "New York Bank Clearings and Stock Prices, 1866-1914," *Review of Economic Statistics*, Volume 8, October, 1926.

[9] Wells, *op. cit.*

[10] Partington, J. E., "Railroad Purchasing and the Business Cycle," Washington, 1929.

[11] Bullock, Williams, and Tucker, "The Balance of Trade of the United States," *Review of Economic Statistics*, Preliminary Volume I, July, 1919.

prior to 1873. If anything, the depression further accelerated this expansion, since both the number of farms and the acreage of improved land in farms increased 50 percent between 1870 and 1880, and crop production increased 50 percent between 1873 and 1879-80.[12]

Surprisingly enough, the domestic and foreign markets absorbed the resulting increases in production at prices which must be considered as good, in view of the prevailing financial depression and the downward trend in the general price level.[13]

Wheat acreage moved steadily westward across the prairies, and the production of wheat increased from about 250,000,000 bushels in the period 1870 to 1873 to 500,000,000 bushels, or just double the pre-depression level, in 1879-80.

Over the seven-year period from 1874 to 1880 the average farm price of wheat was 85 percent of the price reported for 1873, and the season price of spring wheat at Chicago actually averaged above the 1873 price in 1876, although the size of the two crops was not greatly different.

The price of wheat was supported during this period by an increasing domestic consumption due to the rapid growth in population, by an increase in the average level of exports from around 50,000,000 bushels in 1870-72 to almost 175,000,000 bushels in 1878-80, and by an abrupt drop of approximately 15 cents per bushel in the freight rate on wheat from Chicago to New York between 1873 and 1876.[14] This drop in freight rates is especially important when it is remembered that approximately 70 percent of our wheat production was accounted for by the North Central States during this period.

In the case of cotton, acreage and production were greatly reduced through the Civil War period and a normal level in terms of prewar production was not reached until about 1875. The average price of cotton at New York City in the 1875-76 season was slightly over 13 cents per pound as compared with 12.25 cents in the five years just preceding the war, 1856-57 to 1860-61, despite the fact that the depression had been under way since the fall of 1873. Cotton acreage increased 20 percent in the next three years, but the average spot price at New York City in the

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[12] Census of Agriculture, 1935, Volume I, Tables I and II; Persons, op. cit., Table 12; Timoshenko, V. P., "The Rate of Agricultural Fluctuations in the Business Cycle," University of Michigan Business Studies, Volume II, No. 9, June, 1930, Table I.

[13] Unless otherwise noted, the data in this section are based upon the series of special articles dealing with corn, wheat, cotton, and livestock which were published in the Yearbooks of the U. S. Department of Agriculture in 1921-23, and upon acreage, production, and price estimates as given in the Yearbook for 1927 and the Agricultural Statistics Report for 1936.

[14] As indicated by the rates quoted in the *Aldrich Report*, and by Figure 55 in the special article on wheat in the Yearbook of the U. S. Department of Agriculture, 1921.

1878-79 season, which was the lowest in the period, was only 10 percent under the price for 1875-76, while the price in 1880 was only 5 percent under the 1875 level, even though production was up 45 percent. Meanwhile, as acreage and production increased, exports moved sharply upward from an average of 2,400,000 running bales in 1870-72 to 3,800,000 bales in 1878-80.

Corn production was cut down by dry weather in both 1873 and 1874, and corn prices averaged almost 65 cents per bushel in 1874. But in 1875, when a 10 percent increase in acreage was accompanied by a 25 percent increase in yield, prices moved sharply downward to around the 35-cent level, where they remained through 1880. This price, however, was comparable to the price which had prevailed in 1872, while corn acreage increased 50 percent and corn production 500,000,000 bushels between 1870-72 and 1878-80. Almost all of the increase came in the North Central States, with the result that almost 73.5 percent of the corn was produced in these states in 1879 as compared with only about 57.5 percent in 1869.

The increased supplies of feed grains and hay were converted into livestock. Hog numbers, which were at a cyclical high in 1873, decreased into 1876 and then increased 35 percent to record a new high in 1879. But in six of the seven years following 1873, the reported per head value of swine on hand January 1 was above the value reported in 1873, and in the other year, 1879, the reported value was only 15 percent under 1873. Pork and lard exports steadily increased through the period, being equivalent to 1,665,000 average hogs in 1870-72, and to 7,200,000 head in 1878-80.[15]

The number of all cattle increased about 50 percent between 1870 and 1880. This marked increase in cattle was due to the increase in hay and feed supplies in the corn belt, to the continuing spread of range cattle from Texas northward, which followed the discovery that cattle could be wintered in the Great Plains Region without supplemental feed,[16] and to the fact that cattle prices, especially beef cattle prices, were not affected seriously by the depression. The farm price of beef cattle averaged $18.00 per head in the three years, 1872-74, and then dropped to only $16.50 per head in the period 1875 through 1880, despite the fall in the general price level and the fact that beef cattle

[15] See Thorne, G. B., and Richards, P., "Factors Affecting Exports of United States Hog Products," Bureau of Agricultural Economics, mimeograph, Washington, D.C., November, 1932, Figure I.

[16] See the special article on the Texas cattle situation in the Annual Report of the Commissioner of Agriculture for 1870, and Edward Everett Dale, "The Range Cattle Industry," University of Oklahoma Press, 1930.

numbers increased about 30 percent from 1872-74 into 1880.

Altogether, agricultural prices decreased about 30 percent at the same time that production was increasing 50 percent, but this decrease in agricultural prices was accompanied by a somewhat greater decrease in nonagricultural prices, with the prices of commodities other than farm products and food at wholesale declining slightly over 35 percent between 1873 and 1879, the year when prices reached their lowest level.

If the five years, 1856-60, preceding the Civil War are considered as a "normal" and agricultural and nonagricultural prices indexed on this base, a sharp rise from 100 to 189 for agricultural and to 202 for nonagricultural prices is indicated in the period 1861 to 1864.[17] The deflation which began in 1865 resulted in a reasonably gradual decline in both the prices of agricultural and nonagricultural commodities from a peak to a low point in 1878 to 1879, so that it actually was stretched over a fifteen-year period. Throughout this period agricultural prices fell somewhat slower than nonagricultural prices, with the exception that agricultural prices only leveled off in 1872 and 1873, while nonagricultural prices increased so that the relative purchasing power of agricultural products was depressed temporarily. The greater part of this relative loss was regained in 1874, however, and by 1879 both agricultural and nonagricultural prices had declined about 55 percent as compared with the peak reached in 1864. In the revival which followed, agricultural prices moved above nonagricultural prices as exports increased.

Farm income apparently increased about 15 percent from 1870 to 1880. This estimated increase in farm income is based upon the estimated increase in the gross value of nine crops and in the value of livestock slaughter. The estimated proportion of the national income going to agriculture, calculated on the basis of net income consumed, was 28 percent in both 1869 and 1879. Since both farm and total population increased 25 percent over the same period, the per capita income of the agricultural population was maintained at the same relative level as the per capita income of the nonagricultural population.[18] An additional

[17] Based upon the Warren and Pearson Index as given in Warren, G. F., and Pearson, F. A., "Prices," New York, 1933, Table 3.

[18] These income estimates are based upon an estimated *national net income consumed* of about $5,485,000,000 and a comparable agricultural income of $1,535,000,000 in 1869, and a national net income of about $6,435,000,000 and a comparable agricultural income of $1,785,000,000 in 1879. These estimates are used through the courtesy of Mr. P. H. Bollinger of the Agricultural Industrial Relations Section, Agricultural Adjustment Administration. The nonfarm portion of the national income is based upon King, W. I., "Wealth and Income of the People of the United States," New York, 1915, Tables XXII and XXIII. Total population was 39,818,000 and estimated farm population 18,373,000 in 1870, while total population was 50,156,000 and estimated farm population 22,981,000 in 1880; Part I, Supplementary Report of the Land Planning Committee to the National Resources Board, *op. cit.*, Table VI.

income item which must not be overlooked is the increase in the value of farms and farm land through this same period. The average value of farm land per acre in 1880 was slightly over 4 percent higher than in 1870, and the value of all farm property increased slightly over 35 percent or from $8,945,000,000 in 1870 to $12,180,000,000 in 1880.[19]

IV

Almost all of our evidence indicates that agriculture fared about as well as could have been asked from 1873 into 1879, even though agricultural prices fell during this period and were undoubtedly very low in certain sections in years when very large crops were realized. As a check on this statistical evidence, however, certain comments by contemporary writers or others who have interested themselves in this period should be noted.

For the year 1875, the Chicago Board of Trade reported that the impact of the depression had been less severe in the Northwest than in other parts of the country, and that prices were renumerative and crops reasonably good. Extremely low agricultural prices were reported for 1878, but it was pointed out that purchasing power had been maintained through a parallel fall in the prices of things farmers needed. The development of the Northwest was described as "marvelous," and a rapid increase in population forecast.[20]

Hammond indicates that "for a decade and a half following 1876 cotton growers in the South were, generally speaking, in a fairly prosperous condition. A great increase in the demand for cotton took place in Europe, especially on the continent, and the demand was met in the main by American cotton. An even more rapid growth in manufactures took place in our own country, especially in the South where cotton mills multiplied rapidly after 1870."[21]

Buck, in discussing "fundamental conditions," indicates that farmers, especially mid-western farmers, were generally dissat-

[19] This increase, however, was not evenly distributed. Along the Atlantic Coast, the acreage of farm land and the value of all farm property increased only about 10 percent through the period, and actual decreases in the value of all property were recorded for two states in this region, New Jersey and Vermont. In the East North Central States, acreage increased 20 percent and the value of all farm property 35 percent, and in the South Atlantic and East South Central States, where cotton was again gaining ground, acreage increased almost 15 percent and value over 30 percent. But in the Pacific, West South Central, and West North Central States, where expansion was most active, acreages increased approximately 55, 70, and 95 percent and values approximately 80, 120, and 90 percent, respectively, while in the sparsely settled Mountain States acreage increased slightly over 125 percent and the value of all farm property 525 percent. Calculated from acreage and value data as shown by the censuses for 1870 and 1880.

[20] Annual Report of the Trade and Commerce of Chicago, *Secretary's Review* for 1875 and 1878.

[21] As quoted in Schmidt & Ross, "Readings in the Economic History of American Agriculture," New York, 1925, Chapter 22.

isfied with their relative standard of living, that their experience with railroad rates and railroad stocks led them into the fight for railroad regulation after 1870, and that the inadequate credit system, the prevailing methods of taxation, commission men and middlemen, and the high tariff were all subjects of frequent complaint. He further indicates that conditions were worse rather than better in the five years following the crisis of 1873.

But he also says in the opening chapter of his study of the Granger Movement that "it would be untrue to say that the conditions of American farmers were retrograding in the decade following the Civil War." And it is interesting to note that the Grange organization reached its height in 1873 and 1874. Only 4,000 of the 20,000 granges which were in existence in 1874 survived in 1878.[22] And Allan Nevins concluded that, although "the farmer still endured a multitude of hardships and many injustices," there was marked improvement in his economic welfare after 1875 as contrasted with the decade following the Civil War.[23]

Scattered references to the condition of agriculture are found in the Annual Reports of the United States Commissioner of Agriculture for the period 1870 to 1880. The Commissioner reported "the foundation interest of the country (agriculture) as prosperous and productive in high degree in 1870," and this was reiterated in 1873.

Agricultural Statisticians' reports for the period tend to dwell on the volume of agricultural production and trade rather than upon price, although occasional discussions of price and income can be found. In 1875, for example, the statistician pointed out that a very large crop of cotton failed to yield as great a return as a smaller crop, and that the same held true for corn. Again in 1876 the statistician noted that the farmer "has seen the price (of cotton) decline 37 percent by an increased production in a single year of 38 percent." But in the same report the statistician devoted almost eight consecutive pages to the listing of farms and plantations on which exceptionally high yields of cotton had been obtained.

In 1877 the statistician delved into the "philosophy" of the prices of corn and wheat. In the case of corn, he found that "there

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[22] This brief discussion is based upon Buck, S. J., "The Granger Movement," Cambridge, 1913, Chapter 1, and Buck, S. J., "The Agrarian Crusade," New Haven, 1921, Chapter 5. The brief but spectacular rise in the Grange coincided with the short two-year period in which the relative purchasing power of agricultural products was depressed by the slight rise of non-agricultural prices which was abruptly ended by the crisis of 1873.

[23] Nevins, A. J., "The Emergence of Modern America," New York, 1927, Chapter 13.

is to the farmer a consolation in the law of compensation involved in the effect of quantity upon value and production," since the value of each acre of corn was greater in years of low production than in years when good yields were obtained. And in 1878 it was noted that wheat prices had settled to a lower point than in any previous year as a result of the general decline of values to a specie base, but this was qualified by a statement that the decline did "not indicate a loss to farmers at all in proportion to the figures," since the price of manufactured products also had declined, and since cheap wheat enabled American farmers to undersell other producers in the export market.

And in 1880 the statement that "our farmers have rejoiced in the realization of higher rewards for agricultural labor than during any other continuous four years in our history" was made by the Commissioner himself. In brief, the Commissioner and his statistician were much more interested in production than in prices—they seemed to assume that prices would take care of themselves as production increased.[24]

V

A comparison between the situation of agriculture in the depression which began in 1873 and in the depression which began in 1929 is of interest. Both 1873 and 1929 followed a war period in which prices had been inflated so that the reaction which followed the speculative crash was in each case intensified by the accompanying deflation. (See accompanying chart).[25] In addition, both depressions were world-wide and were marked by a considerable volume of unemployment and social unrest.

But the similar aspects are more than outweighed by the dissimilarities, which are easily apparent. *First,* the depression of 1873 occurred at a time when considerable acreages of free land still were available and at a time when railroad companies, states, and others were anxious to sell land which they had acquired from the Federal Government. Population was growing rapidly, but surplus workers could be diverted with reasonable ease from one occupation to another when and where such diversion was needed.[26]

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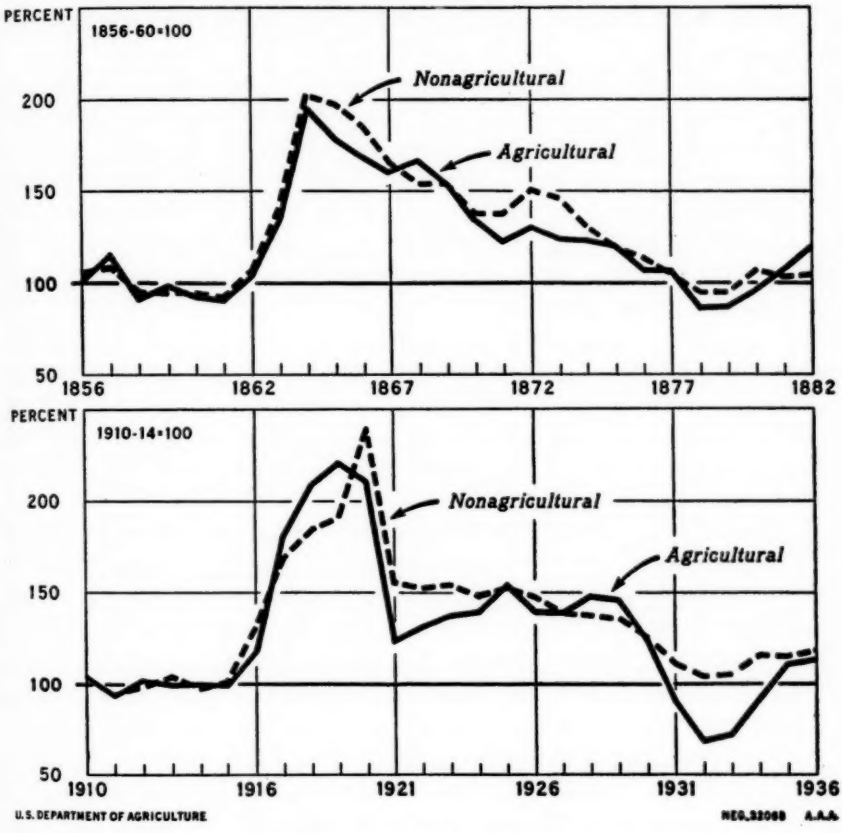
[24] These quotations are from the annual reports of the Commissioner of Agriculture for the period 1870 to 1880, as published by the Government Printing Office, 1871-81.

[25] The data charted are the prices of agricultural and nonagricultural products, excluding the food group, as compiled by Warren and Pearson for 1856-82, and by the Bureau of Labor Statistics for 1910-36. It should be noted that these are not the same series as the indexes of prices received and prices paid by farmers in the farm and retail markets which were used in calculating parity prices under the Agricultural Adjustment Act.

[26] "Surplus" workers in the sense of incoming immigrants and natural increase in the farm population rather than workers forced out of industrial employment. See Shannon, F. A., "The Homestead Act and the Labor Surplus," *American Historical Review,* July, 1936.

In contrast, our agricultural acreage had been over-expanded in 1929, so that considerable areas of submarginal land were in cultivation in the Great Plains Region and the population which flowed from cities to farms from 1930 to 1933, for the most part, could only expect to find a place on which to live or exist, rather

INDEXES OF AGRICULTURAL AND NONAGRICULTURAL PRICES, 1856-82 AND 1910-36



than a place to work. The census statistics for the two periods clearly show the difference, since both the number of farms and the acreage of improved land in farms increased about 50 percent between 1870 and 1880, while an increase of almost 10 percent in the number of farms between 1930 and 1935 was apparently accompanied by a slight decrease in the actual acreage of cultivated land.

Second, the foreign market was expanding during the depression of 1873. Not only was agricultural production increasing at

a rapid rate in this country, but England, and to some extent the other countries in Europe, were willing to accept increasing supplies of American grain and American meat.

In contrast, in 1929 the foreign market for agricultural products was contracting and almost every European country, including England, was exerting itself to maintain agricultural prices and increase agricultural production within its own borders as a result of the nationalistic spirit which had prevailed since the World Ward, and as a defense against the effects of the depression itself.

Third, in 1873, although prices were falling and there was some industrial unemployment, such indexes as are available indicate that manufacturing and mining output were maintained or slightly increased through the period.[27] Both the total national income and gross farm income were apparently maintained at a reasonably stable absolute level through the greater part of the decade from 1870 to 1880, while the total national wealth showed an increase of 45 percent.[28]

In contrast, industrial production in the United States declined over 35 percent from 1929 to 1933.[29] Total national income decreased over 40 percent, farm income decreased 50 percent, and the total national wealth was sharply contracted, with the value of all agricultural property decreasing slighty over 30 percent from 1929 to 1934.[30]

Fourth, in the period following 1873, prices of both agricultural and nonagricultural products gradually declined from the peak which had been reached in 1864 over a fifteen-year period to the low point in 1878 or 1879. Some disparity developed in the two years, 1872 and 1873, but the outstanding characteristic is the gradual downward trend and the maintenance of the relative relationship which had prevailed in the prewar period, 1856-60.

In contrast, the decline from 1920 into 1933 was not gradual, but rather was marked by an abrupt dislocation of the entire price structure in 1920 and again in 1930-32. In both 1920 and 1930-32 agricultural prices fell much farther than nonagricultural prices, and a period of three to four years was required before agricultural prices regained the same relative level with

[27] It should be remembered that the usual indexes used to show the depth of the depression from 1873 to 1879 are calculated in terms of a trend which was increasing at the annual rate of about three percent.

[28] From $30,062,000,000 to $43,642,000,000, currency basis, as reported in Statistical Abstract of the United States, Government Printing Office, 1933, Table 274.

[29] Federal Reserve Board index of industrial production, as currently published.

[30] Estimated income paid out, "National Income in the United States, 1929-35," U. S. Department of Commerce, Government Printing Office, 1936, Tables 1 and 10, and value of all agricultural property as reported in the Censuses of Agriculture for 1929 and 1934.

respect to nonagricultural prices as had prevailed in prewar years, 1910-14. The difference in the currency and monetary situations between the two periods is clearly contrasted when it is remembered that we were able to go on the gold standard in 1879 and that we were forced off the gold standard in 1934.

A *fifth* factor, which must be classed as accidental, also should be noted. Following the depression of 1873 a succession of short crops in Europe gave an abnormal impetus to agricultural exports and agricultural prices, which formed the basis for the business revival of 1879-82.[31] In the current situation, the drought came in the United States in 1934 and 1936, so that farmers failed to gain by the resulting increases in prices to anything like the extent that they gained in the period 1877-81.

We are forced to the conclusion that conditions in the period 1873 to 1879 were essentially different from those which have prevailed since 1920. In the decade from 1870 to 1880 competition was almost as effective in the fields of commerce, industry, and transportation as in agriculture, as indicated by the parallel decline in agricultural and nonagricultural prices and by the sharp decrease in freight rates between 1873 and 1876. The frontier and the foreign market were still the dominant forces in the American situation. But with all of our land occupied, with competition limited, with the slowing down in the growth of our population, and with the contraction of the foreign market, we are faced with an entirely different situation. If the continuing need for agricultural and industrial readjustment is to be adequately met, or if the recurrence of such situations as prevailed in 1930-33 is to be prevented, a more evenly balanced set of inter-relationships between agriculture, industry, and commerce is needed.[32]

Discussion by O. C. Stine

Bureau of Agricultural Economics

As Dr. Taylor has indicated, historical papers dealing with agriculture such as presented by Woodworth and Wells are valuable both as demonstrating the application of historical methods to research and as present-

[31] With respect to England, Ernle noted that the period 1875 to 1877 was characterized by "bleak springs and rainy summers (which) produced short cereal crops of inferior quality, mildew in wheat, mould in hops, blight in other crops, disease in cattle, rot in sheep, throwing heavy lands in a foul condition, deteriorating the finer grasses of pastures," and that conditions were even worse in the year 1879. Lord Ernle, "English Farming, Past and Present," London, 1922.

[32] A similar conclusion will be found in Ezekiel Mordecai, "Population and Unemployment," *Annals of the American Academy of Political and Social Science, Philadelphia*, November, 1936.

ing facts that have been significant in the development of agriculture. It seems to me equally important to recognize the need of more perspective in dealing with current problems. Dr. Woodworth seems to apologize in the introduction to his paper for his turning aside from attempts at the solution of present critical problems with a view to the formulation of state land policies to explore the history of an area in an old settled country. It seems to me that instead of apologizing, he ought to recognize that such an historical exploration is essential to judging present conditions and probable future developments.

The explorations of Dr. Woodworth have not only revealed some facts that are very interesting in showing that agriculture once seemed to prosper in this area, but they also suggest some interesting questions as to the future of the area. Can one now evaluate lands and opportunities for income in this area in terms of present conditions? It seems rather obvious that it cannot be done. There is no evidence that the process of changing has stopped. His exploration seems to me to show clearly that conditions tomorrow are not likely to be the same as today, and that we should be studying the several forces that are in operation causing changes, to determine what are likely to be the conditions tomorrow.

Incidentally, Dr. Woodworth's paper raises some interesting questions as to assumptions as to who moves when the agriculture of an area is declining. It has been generally assumed that the more progressive and the younger people move. He points to a situation, however, in which the more successful may remain behind because of their success. Undoubtedly the effects of different conditions tending to cause shifts in population differ in terms of age and character of the population as well as in alternative prospects for income.

Dr. Woodworth presents some very interesting data as to current conditions. These data need to be examined more searchingly against their background, to find the current tendencies. To some extent these current tendencies are indicated in the analysis, but this feature of the analysis should be pushed to further limits. The future values of historical research can be demonstrated best by applying more searching analysis in the light of history, to these current tendencies. In his concluding statement, Mr. Woodworth makes well-pointed and significant observations from his historical exploration. I merely want to contribute something toward emphasizing the need of a study of this character in dealing with problems of land utilization in all parts of the country.

The paper dealing with agriculture in the depression of 1873-79 presents an example of how the historical approach may contribute to understanding agricultural price movements in a major depression. This paper contributes to the perspective of major depressions in general, and raises many questions as to the real causes of and real remedies for the recent depression.

This paper makes a real contribution in bringing together many significant facts relating to the depression of 1873-79. As a comparative study, it is short of an adequate development of conditions associated with the recent depression. Mr. Wells presents a very interesting statement of some of the contrasts between conditions associated with the recent depression and that of the earlier years. Looking at the chart of price changes in the period 1919-36 and in the period 1865-82, one may be more

impressed with the similarity than the dissimilarity in the long-period decline of agricultural and nonagricultural prices. Mr. Wells has chosen to deal primarily with the dissimilarities and with the relationships between agricultural and nonagricultural prices. The forces that make for similarity of price movements in the face of the dissimilarity of conditions also should be subjected to searching analysis.

NOTES

A SYSTEM FOR QUANTITY DISCOUNTS ON MILK AND CREAM

The decline in per capita fluid milk consumption during the recent depression years and the apparent failure of consumption to expand proportionately to improved incomes accompanying recovery is being viewed with considerable alarm from many quarters. The situation has given rise to numerous discussions involving competition of canned milk, unified distribution, the elasticity of demand for milk and revised price schedules.

McIsaac[1] has suggested one possible method of stimulating increased utilization of fluid milk which involves a stepped price schedule for retail sales comparable to that used by public utility companies to encourage the use of electric power in the home. Mention is made of the important similarity that each service must be supplied continuously and does not permit purchases in advance of need, so that a resort to the stepped rate promotional service is theoretically sound. This principle as applied to milk is illustrated by McIsaac in a schedule wherein the first 10 quarts purchased per month are sold at the rate of 14 cents per quart (13 cent market assumed), the next 10 at 13 cents, the next 10 at 12 cents, the next 20 at 11 cents, and so on at varying amounts. It is assumed that the average consumption is less than 40 quarts per month per family and the objective is to expand consumption beyond 40 quarts, while looking at 40 quarts to cover the major costs of distribution to the consumer. The plan undoubtedly illustrates an important principle as a method of expanding consumption but no provision is made for spreading the decreased distributor revenue per unit of Class 1 milk between the distributors and the producers. Producers could sell more Class 1 milk and therefore make some gain, but it is unlikely that the distributors would continue to pay the established rate on all Class 1 milk. It is questionable if any system of pricing could be worked out on a satisfactory basis.

An alternative retail (and wholesale) price plan has been suggested by Elwell[2] which appears to have considerable merit. It introduces some refinements, if not a new principle. Under this plan milk would be sold at a fixed price per quart regardless of the number of units taken (including wholesale stops), plus a service charge which decreases on a per unit basis as the size of the sale increases. That is, there would be two components to the price schedule, one part setting forth the cost (price) of the milk and the other the cost of the service. Unlike the stepped schedule proposed by McIsaac, Elwell's schedule would be applicable to the number of quarts sold at a particular stop rather than the number sold during the period of one month. This difference is of particular significance.

For example, if the distributors' buying price is 5 cents per quart and it costs 2 cents to process and bottle (including a small profit) the base price would be 7 cents in the schedule and remain unchanged as regards number of quarts taken. The service charge is somewhat more difficult to calculate and errors probably would need to be removed by experimenta-

[1] The Stepped Price Schedule for Fluid Milk. A. M. McIsaac, JOURNAL OF FARM ECONOMICS Notes. May, 1935.

[2] Edwin S. Elwell, President, Northland Milk and Ice Cream Company, Minneapolis, Minnesota. The author is indebted to Elwell for this price plan. The information was obtained by personal interview.

tion. However, since the daily costs of operating a delivery vehicle and the maximum number of one-unit stops are known with a fair degree of accuracy, the approximate cost of one-unit stops is readily obtainable. If $12.50 per day is assumed to be a reasonable cost of operating a delivery vehicle which could serve 250 one-unit stops, the cost of each stop is 5 cents.

If, on the other hand, the stops were on a two-unit basis the service cost per unit would be reduced materially. Elwell believes there is a fundamental consideration at this point which is generally overlooked. That is, most milk marketing men have considered (at least on the basis of their price plans) two units about as expensive to deliver as one, and the break not occurring until the stop is increased to four or more units. Actually an increase from one to two units is a 100 percent increase and a similar increase cannot be attained by adding one unit to any higher base. It is in going from one to two units per stop that the greatest room for economy in delivery costs appears to lie. The Elwell plan is devised, therefore, so that one-unit stops will bear their proportionate share of the delivery expense. Under such a system it is likely that the number of one-unit stops would be substantially reduced, resulting in a more efficient system of milk distribution.

If a market were on a 11-cent retail basis, and a base price of 7 cents is assumed, a tentative schedule for quarts of milk at retail and wholesale might appear as follows:[3]

Quarts of milk (number)	Cost of milk (cents)	Cost of service* (cents)	Total cost (cents)	Cost per quart (cents)
1	7	5	12	12
2	14	6	20	10
3	21	7	28	9 1/3
4	28	8	36	9
5	35	9	44	8 4/5
6	42	10	52	8 2/3
12	84	16	100	8 1/3
24	168	28	196	8 1/6
100	700	104	804	8 1/25
144	1008	148	1155	8 1/36
200	1400	204	1604	8 1/50

* The number of units in the delivery plus 4 equals the service charge in cents.

It is important to note that the delivered price of one quart at retail, because of the relatively expensive service, is increased from 11 to 12 cents, and that 2 quarts drop to 10 cents each. The decline in quart prices from that point on is progressively less and less. For example, a wholesale stop of 24 quarts costs $8\frac{1}{6}$ cents each and 144 quarts cost $8\frac{1}{36}$ cents each. Here again the schedule probably represents the relative cost of the delivery

[3] The table illustrates milk sales only but it can be adjusted readily to include other items. Fractions would not appear in the customer's bill since only totals would be summated. To illustrate, a grocery bill might include:

12 quarts milk	@ 7¢	$ .84
10 half pints cream	@ 8¢	.80
6 quarts buttermilk	@ 4¢	.24
2 pounds butter	@37¢	.74
30 units plus 4 equals delivery charge		.34
TOTAL		$2.96

service in the two cases. It is an important feature of the plan that all special arrangements with certain customers would be obviated.

There is a general understanding that a large (about 65 percent) proportion of milk distribution costs arise out of delivery expense. It is also significant that as much as 65 percent of the delivery cost may apply to not more than 35 percent of the delivery business. Under the proposed schedule this discrepancy could not develop since service is placed, as nearly as practicable, on a cost basis. The system thus seeks to discourage the wasteful and expensive features of existing methods of distribution.

It is anticipated that distributing service would be reduced in various ways. A one quart customer, for example, might be induced to take two quarts every other day. This is particularly true where the home is provided with mechanical refrigeration. Probably more important would be the pooling of orders by families living in the same building or on adjacent properties. The pooling of orders has been mentioned as a device which would work to defeat the purpose of similar schemes. In this case, pooling would be consistent with the purpose of the plan since it would result in lower milk prices to consumers without affecting the distributors' plant price of milk.

Lower consumer prices, which would be achieved entirely by a reduction in delivery service, should stimulate consumption. Since the producers' base price is not affected by the schedule, they are in a position to gain through increased sales of base milk. The distributors, to be sure, would experience a substantial decline in revenue. But assuming their calculations are correct in selling service at cost, their costs would decline proportionately. They should make some net gain, in fact, through increased profits at the plant arising out of some increase in volume.

Too much cannot be said in favor of the principle of the plan at this point. It contains the all important ideal which, to repeat, is lower milk prices to consumers without a reduction in producer prices or in the net returns to dealers. There is only one possible way in which this could be accomplished and that is through a reduction of some cost item. It is logical that delivery costs should be singled out for reduction because therein lies the greatest expense of milk distribution, and because consumers can be served adequately with a much less expensive delivery system.

Space does not permit a comprehensive treatment of all the ramifications of the plan and there may be advantages and disadvantages that cannot be foreseen in advance. It is clear, however, that pointed opposition would be forthcoming from the milk wagon drivers, since the adoption of the plan should bring about a consolidation of routes. Also, the distributors would need to introduce new methods of checking drivers' sales and collections. Considerable thought has been given to this problem, and two or three ways have been suggested. Undoubtedly, if the plan were adopted, a satisfactory checking system could be worked out.

Another important deterrent to the adoption of the scheme is the fact that the one-unit customers might feel that they were discriminated against. The idea that they were buying an expensive service might involve an endless number of explanations and some loss of good will on the part of the distributors.

The one-unit customers ordinarily would have recourse through the

stores if they were unable to consolidate purchases in such a way as to avoid the relatively high single-unit prices. However, the predominance of the one quart customers may dictate a policy of maintaining the one quart price at the former level (assumed to be 11 cents) and reduce two quarts to 10 cents each. This could be accomplished by lowering the service charge schedule 1 cent. It should be considered a temporary measure to get the plan started.

Furthermore, it may be impossible to induce all dealers in a market to adopt the schedule simultaneously, and unless this were done, the leaders might be charged with employing a new competitive device. Small dealers would have some basis for objecting since they would have less opportunity to consolidate routes as their route services decreased. Above all, there would be tradition and inertia on the part of both distributors and consumers to be overcome. Some of the recent developments in cooperative purchasing by urban consumers does suggest that the plan may be looked upon with favor by many large groups. Most would agree that any scheme which seeks to eliminate wasteful and expensive marketing services and yet permits a consumer to purchase such service at its proportionate cost is a desirable refinement over the existing distributing system. In any case, it should be made clear that this discussion is intended merely to stimulate further thinking on an important and timely problem.

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ESTABLISHMENT OF OHIO STUDENTS OF VOCATIONAL AGRICULTURE IN FARMING[1]

In 1935, seventeen years after the first departments of vocational agriculture in Ohio high schools were established, a study was made of the extent and by what means former students had succeeded in establishing themselves in farming, at what rates they had advanced in farming status, and how the situations of present students compared with those of former students in respect to prospects of becoming established in farming. The study was confined to students of vocational agriculture who had been enrolled in all-day high school classes conducted throughout the school year, as distinguished from part-time and evening class students enrolled in special classes for shorter periods. It included an examination of 3,033 cases of former students leaving high school in the period from 1918 to 1934 inclusive, a more intensive study of 362 cases sampled from this group, and a comparison of both with a group of 987 students enrolled during the school year 1934-1935. Within the areas chosen for the study, all former students of vocational agriculture leaving high school during the period specified were included. The counties included Athens, Clinton, Franklin, Hancock and Wayne, and were chosen because of the presence of a relatively large number of long-established high school departments of vocational agriculture, representativeness of widely varying types of farming in their respective sections of the state, and wide range in percentage of farm tenancy. On the basis of the points enumerated, the farm-

[1] Abstract of a doctoral dissertation, Ohio State University, 1936.

ing conditions within the selected areas seemed to average slightly more favorable than for the state as a whole. The analysis of the data was made by county and by period of leaving high school, the periods 1918-1924, 1924-1929 and 1929-1934 being designated as early, middle, and late periods, respectively.

Of the 3,033 former students, 45.7 percent were found to be farming in 1935, 45.8 percent in other occupations, and 1.4 percent deceased. The remaining 7.1 percent could not be accounted for. The percentage of former students reported as farming varied from 37.8 to 51.7 among the counties. For the early period it was 25.0 percent, for the middle period 41.0 percent, and for the late period 59.3 percent. This trend reveals the drift out of farming into other occupations after the period immediately following high school during which some former students are undecided, and many do not discover desired opportunities.

The percentage of former students coming from farms was 85.4, counting as a farm any tract of 3 acres or more without regard to the amount of agricultural production. The variation among counties was from 81.2 percent to 89.4 percent. For the early period the figure was 85.6 per cent; for the middle period, 82.4 percent; and for the late period, 88.9 percent. Only 11.3 percent of the students from homes not farms were reported as farming, indicating that the former student of nonfarm origin who becomes a farmer is the exceptional case. The percentage of the former students from farms reported farming was 51.5, varying from 44.3 percent to 56.8 percent in the counties. For the early period this percentage was 28.1, for the middle period, 47.6; and for the late period, 64.6. When all former students were classified according to the size of home farm from which they came, it was found that the percentage now farming increased continuously with the increase in the size of the farm, reaching a maximum of 62.5 percent for the group coming from farms of 260 acres and over. Only from the farms of 50 to 99 acres and in the larger size groups did the number farming exceed the number in other occupations. For the early period the farm size group of 260 acres and over was the only one from which a majority of former students were reported as still farming, for the middle period, a majority of the former students from the 100 to 174 acres and larger size groups were reported farming, and for the later period a majority farming appeared in the 20 to 49 acre and all larger size groups.

Data on farming status, method and rate of attaining that status, and home situations were secured from a random sample of 362 of these cases. These young men were interviewed by teachers of vocational agriculture for certain specified points concerning their occupational history, their families, and the organization of the home farm business at the time of their leaving high school and in 1935. Of the 362 selected former students, 240, or approximately two-thirds were in statuses below that of a farm operator, 73 were working on an allowance basis; 64 were working for wages; 45 were managing one or more farm enterprises; 58 were sharing in the home farm business under the supervision of the father. Of the 122 young men comprising the one-third of the selected group who had become farm operators, 75 were share renters; 13 were cash renters; 21 were owners; 10 were owners and renters, that is part owners; and 3 were operating farms for their parents as managers. The percentage in each status

varied greatly among the counties, reflecting differences in farming conditions. The ages of these men ranged from 18 years to 35 years. Comparison of the group, from 18 to 25 years of age, with the group, 26 to 35 years of age, disclosed a slow steady advancement in status by those who had remained in the occupation. It was apparent also that the young men who had not become farm operators by the age of about thirty entered some other occupation instead of continuing to farm under the supervision of some one else. Of the young men coming to high school from full-owner, part-owner and tenant farms, about the same percentage of those remaining in farming became share renters. The young men from tenant farms, however, advanced beyond this status only in rare cases. There was slightly more advancement by those from full-owner farms than by those from part-owner farms. The percentage of young men from tenant farms who remained in farming was relatively less than their proportionate numbers in the farming population. The relative advancement of the young men from the three groups is thus associated with the ranking of full owners, part owners, and tenants of the farms from which they came.

In order that the rate of advancement from status to status in farming might be observed more clearly than was possible merely by the comparisons between the average status of the different age groups, the cases of the 122 young men who had become farm operators were analyzed by years. The status of working for allowances and managing an enterprise were found to be of relatively short duration for most young men. Wage working and sharing in the whole farm business under the supervision of the father persisted longer and the share renting status continued for a considerable period before changing to ownership. The most common beginning status after leaving high school was working on an allowance basis. About one-fifth of those who became operators worked on a wage basis at some time and about one-fourth shared on an enterprise basis. Although relatively few started on the share-renting basis, two-thirds of the group occupied it at some time in their advancement. The average farming status of all young men in the group of 122, as determined by a method of weighting each status, first reached the equivalent of share renting during the ninth year out of high school.

The relation of certain personal, family and farm factors to difference in farming status attained was studied. The personal factors of age, number of years since leaving high school, graduation from high school, number of years of enrollment in vocational agriculture, marriage, length of time since marriage, and establishment of separate household, did not seem to be associated to a marked degree with differences in status attained. The family factors considered were having a father living, age of father, amount of time spent by father in farming on the same farm, number of brothers and total number of children in the parents' family. The presence of the father on the same farm, although not his age alone, tended to be associated with a slower rate of taking over responsibility by the son. Competition from brothers seemed to have a more marked effect than merely larger size of parents' family in slowing the rate of advancement in farming status. The farm factors considered included size of home farm, number of crop acres per farm, and number of animal units per farm at the time when the former student left high school, and for those who remained on the same farm, the changes in respect to the above items

between time of leaving high school and the year 1935. In 1935, 72.4 percent of the young men who were in the upper status group were on the farm on which they had resided when they left high school. Of those coming from full owner farms, 72.3 percent attained this status on the same farm, while 75.0 percent of the group from tenant farms had to find their opportunity on a farm other than the one on which they lived at the time of leaving high school. Of the young men from the part-owner farms, 54.8 percent of those achieving the upper status group remained on the same farm. For both the upper and lower status groups of young men who remained on the same farm there was some increase in farm acreage for the group as a whole. The most marked increase was in the full-owner group, with about half as much increase in the tenant group. Among those from part-owner farms achievement of advanced status came with a definite decrease in crop acreage. In general, the increase in crop acreage for all groups was about in proportion to increase in total size of farm. Little change occurred in the number of animal units.

Among the most significant conditions revealed by the study were the following: Less than half of all former students, and approximately half of those from farms, have remained in the occupation of farming; the progress up the agricultural ladder of those who have become farm operators was slow, approximately nine years after leaving high school was the average time required for attaining this status by the third of the former students who had advanced that far; the difficulty in becoming established in farming was relatively greater for sons of tenants than for sons of owners. A rapid increase in the proportion of former all-day students of vocational agriculture who continue in the farming occupation can hardly be anticipated as long as approximately three-fourths of the farm boys having access to this type of training enroll for it. Ohio is a highly industrialized state and some occupational outlet other than farming must be found for many of the boys who come from large farm families. For the large number of boys who may enroll in vocational agriculture and yet not remain permanently in farming, the subsidiary values of this vocational training must have weight. These subsidiary values include vocational guidance, training for a temporary vocation as contrasted with a more or less permanent one, and development which will be of value in vocations other than farming. Concerning the other three conditions, the slow rate of advancement in farming, the greater relative difficulty of tenants' sons in becoming established in farming, and the limited opportunities on home farms, the following possibilities merit consideration: continued efforts to develop supervised practice programs which will facilitate establishment in farming; definite attention to the discovery of opportunities for placement in farming for those whose home farms do not provide such opportunities; adequate provision for financing ambitious young men who have the ability and the training required for farming, but who lack capital for a start; recognition of possible developments in part-time farming; and especially a more intensive program of continued vocational education in agriculture for young men during the period when they are attempting to establish themselves in farming.

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SUGAR BEET FIELD LABOR UNDER THE AAA

In the voluminous files of the crop adjustment program for producers of sugar beets and cane which came to an end with the decision of the Supreme Court in the Hoosac-Mills case, there are records of an interesting innovation in labor regulation, prescribed by the Congress of the United States and carried out by the Secretary of Agriculture. How little note was made of this experiment, however, may be gathered from the fact that it was possible for the author of a recent volume on governmental regulation of sugar to bewail the "brutal sacrifice" of labor under the AAA program.[1] Such indifference to the existence of the labor clauses of the Jones-Costigan Sugar Act and lack of knowledge of their administration may justify a brief account in these pages.[2]

I

As approved by the president on May 12, 1933, the Agricultural Adjustment Act contained no provisions relating directly to farm labor. However, when the Jones-Costigan Act, signed on May 9, 1934, added sugar beets and sugarcane to the list of "basic agricultural commodities," the Secretary of Agriculture was authorized to insert in all agreements entered into under the Act provisions which would limit or regulate child labor, and make possible the setting of minimum wages, and the adjudication of labor disputes.

Section 8(a)3 of the Jones-Costigan Sugar Act is as follows:[3]

"In order more fully to effectuate the declared policy of this Act, as set forth in its declaration of policy, and to insure the equitable division between producers and/or growers and/or the processors of sugar beets or sugarcane of any of the proceeds which may be derived from the growing, processing and/or marketing of such sugar beets or sugarcane, and the processing and/or marketing of the products and byproducts thereof, all agreements authorized by this Act relating to sugar beets, sugarcane, or the products thereof may contain provisions which will limit or regulate child labor, and will fix minimum wages for workers or growers employed by the producers and/or processors of sugar beets and/or sugarcane who are parties to such agreements; and the Secretary, upon the request of any producer, or grower, or worker, or of any association of producers, or growers, or workers, or of any processor of sugar beets or sugarcane, is hereby authorized to adjudicate any dispute as to any of the terms under which sugar beets or sugarcane are grown or are to be grown and/or marketed, and the sugar and byproducts thereof are to be marketed. The decision and any determination of the Secretary shall be final."

In accordance with the terms of the Act, the following provisions, proposed by the Secretary of Agriculture and discussed at hearings in September, 1934, were inserted in the Sugar Beet Production Adjustment Contract:[4]

"10. *Labor conditions. To effectuate the policy of Section 8(a)3 of the Act, as amended:*

"(a) *Child Labor.*—The producer hereby agrees not to employ nor to suffer nor permit the employment by any other person, directly or indirectly, in the production, cultivation, and/or harvesting of sugar beets on this farm, any child under the age of 14 years, except a member of his own immediate family, whether for gain to

such child or any other person; and he agrees not to so employ or permit such employment of a child between the ages of fourteen and sixteen years, inclusive, except a member of his immediate family, for a longer period than eight hours each day.

"(b) *Fixing of minimum wages.*—The Secretary shall have the authority (1) after due notice and opportunity for public hearing at a place accessible to producers and workers involved and (2) on the basis of a fair and equitable division among processors, producers, and workers of the proceeds derived from the growing and marketing of sugar beets, and the products thereof, to establish minimum wages for this factory district to be paid by producers to workers and, where necessary, the time and method of payment in connection with the production, cultivation, and/or harvesting of the 1935 and/or the 1936 crops of beets. The producer agrees to abide by the determination of the Secretary when such minimum wages and the time and method of payment have been established.

"(c) *Adjudication of Labor Disputes.*—The processor hereby agrees that he will abide by the decision of the Secretary with respect to any labor disputes involving the producer, in connection with the production, cultivation, and/or harvesting of sugar beets of the producer, when any such dispute has been presented to the Secretary by the producer or any other person and the Secretary has determined to adjudicate such dispute."

Labor provisions were also included in the sugarcane production adjustment contracts for Louisiana, Puerto Rico, the Philippine Islands, Florida, and Hawaii. In addition to the measures authorized in the sugar beet contract, the contracts for Florida and Hawaii permitted limitation of hours of work and extension of the scope of the labor provisions to the laborers engaged in the processing and marketing of cane.

II

The existence of child laborers in the beet fields to an extent that was socially harmful had long been asserted by such agencies as the Children's Bureau and the National Child Labor Committee.[5] However, no satisfactory estimates of the total number of children thus employed were available. The Tariff Commission estimated tentatively that in 1933, 9,541 boys and 5,292 girls under 16 years of age, members of contract laborers' families, worked in the beet fields of the United States.[6] The Children's Bureau declared that the work required was "probably the most exacting done by children anywhere, because of long hours, strained positions, intense heat, exposure to wet and the speed required in certain operations."[7] Retardation of educational progress was, however, the source of the most lasting harm.

The administration of the child labor clause of the production adjustment contracts was a relatively simple matter. Reliance was placed upon the cooperation of the producers and processors, whose organizations had long recognized that the employment of children was a source of inefficiency and a standing reproach to the industry. All complaints were carefully investigated. Such protests as arose came, not from the growers, but from the laborers themselves, who complained of the effect upon family earnings and expressed resentment that the regulations did not apply to children of the grower's own family. As to the effectiveness of the measure, the Department of Labor, in the preliminary findings of the investigation by the Children's Bureau into the family welfare of beet workers in six representative beet-producing states, reported as follows:[8]

"The effects of the child labor provision varied greatly in the different areas visited. The work of children under twelve years of age was practically eliminated in 1935 in four of the eleven areas visited. No child under twelve was reported as working at beets in the Billings, Montana, and the Blissfield, Michigan, areas; in the Weld County, Colorado, and the Sydney, Montana, areas less than two percent of the children between six and twelve years were reported to have worked on beets in 1935. In the central Michigan area, the highest proportion of children working was found, 29 percent of those between six and twelve years of age, with the Minnesota and Worland, Wyoming, areas following with 16.5 and 15 percent respectively of those in this age group. . . . The marked success in enlisting the cooperation of producers and laborers found in most of the areas visited was due directly to the interest and energy of the representatives of the AAA and the sugar companies. Equal interest and application to the task in another year could doubtless bring about an almost complete elimination of the use of the labor of children under fourteen years of age in the sugar beet fields."

The National Child Labor Committee reported that "statements by land owners, renters, and laborers indicated that the child labor provisions of the 1935 contracts had been carried out both in the letter and spirit of the law."[9]

So much for child labor. While the provisions regarding children applied to every contract signer, no wage rates or other terms of adult employment, appeared in the contract. The producer agreed to abide by the determination of the Secretary as to rate, time, and method of payment of wages when and if the secretary made such finding. It was the policy of the Secretary to exercise this right only when growers and laborers were themselves unable to come to terms. As a matter of fact, a wage finding was issued only upon one occasion, albeit one which affected the chief beet-producing area of the country, namely, that of the Mountain States.

According to an estimate of the United States Tariff Commission, of the 159,394 hired field laborers in the beet fields in 1933, 90,357 were in the Mountain States, chiefly Colorado, 54,929 were in the Great Lakes Region and 13,671 were in California.[10] The large amount of hand work required in blocking and thinning, hoeing, pulling and topping beets was done by these predominantly Mexican or German-Russian laborers, usually under an agreement with the grower which set a rate per acre and specified the time and manner of working on a designated number of acres. Data regarding wage rates prior to 1933 are very scattered and incomplete. In Colorado, in 1917, the rate per acre seems to have been about $19 or $20. In 1920 the price reached its all time peak of from $30 to $35 per acre. For the period 1921-23 there was a three year average of $21.97 per acre for Colorado as compared with a similar average of $23.02 for the United States as a whole. After this date the records are complicated by the introduction of a "bonus system" of paying a flat minimum rate per acre and a "bonus," say 50 cents, for each ton above a certain yield per acre, usually twelve tons. From 1924 to 1929 in Colorado the flat rate averaged about $23 per acre; in 1931 it fell to an average of $20.92 per acre. In 1933 wages reached an average rate per acre of $12.37 for Colorado and of $13.84 for the United States as a whole.[11] This was the state of affairs which led the Secretary of Labor to state that "wages for beet sugar workers have fallen so deplorably that the government is

financing workers even during their term of employment," and to suggest that "if now the government is to give benefit payments to farmers, it seems only reasonable for the government to make it a condition of such benefit that the farmers will do something to relieve the United States of the burden of caring for the farmers' own employees."[12] In the meantime, the prices of beets (U. S. average) had fallen from $7.14 per ton in 1930 to $5.13 in 1933.[13] This change, while considerable, does not measure the full force of the downward pressure upon wages since it does not suggest the increased dependence of the growers upon the cash proceeds of the beet crop, or indicate the influence of low beet yields owing to drought.

In 1935 the beet laborers in the Mountain States area determined to force the Secretary of Agriculture to establish wage rates. They endeavored to unite their scattered local associations; they directed to Washington petitions, signed by some four thousand workers; they made demands which growers held to be excessive. In March, 1935, anticipating the possibility that agreement might not be reached voluntarily, the Secretary of Agriculture held hearings in Colorado, Nebraska, and Montana. The laborers demanded a flat rate of $23.00 an acre, save in Montana, where $27.00 an acre was sought. In Southern Colorado the organized growers offered from $12 to $14 per acre, in Montana, $19.40 per acre. Elsewhere a 22½ percent share contract was offered. After the hearings two of the beet growers' associations petitioned the Secretary of Agriculture to act, while another notified him of its failure to come to terms with its laborers.

On April 30, 1935 the Secretary of Agriculture issued a "Determination in re Minimum Wage Rates for 1935 for Sugar Beet Workers." It prescribed a scale of payment for the season's work which, under conditions of normal yield, would amount to a total of $17.50 per acre in southern Colorado, $19.50 in northern Colorado and Nebraska, and $21.50 per acre in Montana. Payment for harvesting was on a tonnage basis. The regional differences of payment were such as had been long established, being commonly ascribed to such regional variations as those in the sugar content of beets, the cost of importing labor, the cost of living and opportunities for alternative employments. The sliding scale for harvest work was objectionable to the laborers, likewise the "hold-back" clause, permitting the grower to withhold from the payment for bunching and thinning, until after the crop was harvested, one dollar per acre, as a guaranty of the faithful performance of the contract entered into by the laborer. On the other hand, the rates specified, while lower than those demanded by the laborers' association, were considerably higher than the rates paid in either 1934 or 1933. A return, at one stroke, to rates paid in the years prior to 1930 seemed impracticable in view of the unfavorable condition of the labor market, crowded with laborers set free from their ordinary industrial employments. Moreover, to have enforced a higher minimum rate per acre, at the cost of loss of employment because of unwillingness of growers to raise beets at those wage rates, could hardly have been regarded as serving the interests of the workers.

In addition to rates, the Determination also specified the time of payment for the various classes of work, with a view to eliminating the delay complained of by some laborers in previous years. It also required that, in addition to cash wages, the grower should provide the laborer, free of charge, with the perquisites customary in the district, such as a habitable house, suitable water, a garden plot, etc.

Upon the publication of this Determination, the question immediately arose as to the status thereunder of share-labor contracts, no mention of which was made therein. A supplementary statement on May 4, 1935, set forth that share contracts for beet labor might be entered into provided that the share cropper be guaranteed a certain minimum income and that payments be made at certain specified times. Under these conditions, the share-labor contract declined greatly in popularity among the growers, to the great satisfaction of the laborers.

The Wage Determination, after some preliminary grumbling by both sides, was speedily incorporated into the usual labor contracts and ushered in a season that was notably free from wage disturbances. Neither in the Mountain States area nor elsewhere was there occasion for the Secretary to exercise his authority to adjudicate beet labor disputes.[14]

The decision of the Supreme Court invalidating the AAA contracts outlawed the labor clauses and ended an experiment that was regarded, almost with unanimity, by organized growers, processors, and state and federal agencies, as a contribution to the public welfare.[15]

1. Willcox, O. W., *Can Industry Govern Itself?* N.Y., W. W. Norton, 1936, pp. 78-9.
2. The only other published account is in the *International Labour Review,* of Geneva, Switzerland, Vol. XXXIII, No. 1 (Jan. 1936), pp. 74-82.
3. Jones-Costigan Sugar Act, Public No. 213, 73rd Congress.
4. Form Sugar 3, approved October 16, 1934.
5. U. S. Department of Labor, Children's Bureau: Publication No. 115 (1923); National Child Labor Committee: Publication No. 318 (1924); No. 327 (1925), No. 333 (1926), No. 359 (1929).
6. Letter from John Lee Coulter to A. J. S. Weaver, dated December 19, 1933.
7. U. S. Department of Labor, Children's Bureau: Publication No. 197 (1933): *Child Labor, Facts and Figures,* p. 31.
8. Memorandum of March 4, 1936, to Dr. Joshua Bernhardt, Chief of the Sugar Section, AAA, pp. 6, 8.
9. The American Child, Vol. XVIII, No. 6 (Sept. 1936), p. 1.
10. Letter from John Lee Coulter to A. J. S. Weaver, dated November 16, 1933. The imperfect character of these estimates is stressed.
11. Wage rates are from: U. S. Department of Labor, Children's Bureau: Publication No. 115 (1923), pp. 61-2; U. S. Tariff Commission, *Costs of Producing Sugar Beets,* Washington, D.C., 1928, Part X, pp. 44-45; also, *Report to the President on Sugar,* Report No. 73, 2nd Series, 1934, pp. 182-183; Abbott, W. Lewis, Report on Labor Conditions in the Growing of Sugar Beets, Washington, D.C., March, 1934. (Mimeographed) pp. 3, 54.
12. Letter of the Secretary of Labor to Hon. Edward P. Costigan, U. S. Senate, dated April 17, 1934.
13. U. S. Department of Agriculture, Yearbook, 1935, p. 439.
14. In October, 1934, a wage dispute at Scottsbluff, Nebraska, was adjudicated by the Secretary of Agriculture, by voluntary consent of both parties. At this time the sugar beet production adjustment contracts had not yet been signed by the growers.
15. Dalton, John E., *Sugar: A Case Study of Government Control,* N.Y., Macmillan, 1937, pp. 159-160.

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Agricultural Adjustment Administration

WHITHER—LENDING TO FARMERS FOR PRODUCTION PURPOSES

Many persons question the need, under normal conditions, for active and continued operation of such pseudo-governmental financing agencies for farmers as production credit associations and banks for cooperatives. Generally speaking, those who hold this view regard them as emergency agencies to be used only in periods of stress, such as the major depression and drouth years. It is held that the operation of such agencies at other times constitutes unnecessary duplication, and affords unfair competition to established banks and other nonsubsidized lending agencies.

These critics apparently base their beliefs upon certain untenable assumptions. It is the purpose of this note to state several of these assumptions and to examine their validity.

The first assumption appears to be that the function of commercial banking is the same now as it was at an earlier date. This is truly an odd assumption, since this is a dynamic world, full of constant change, and banking is no exception. For instance, the public does not appear inclined to change the pronounced stand they have taken that deposits must be fully protected and available upon demand. This means that banks must in the future remain highly "liquid," and regardless of the wishes of individual bankers, that marked changes both in general banking procedure and in specific services rendered by banks either have taken place or will soon occur.

A second major assumption is that the commercial banking system of the 1920's, and earlier, adequately served the credit needs of farmers. This is erroneous. No more need be said in refutation than to point out that at one time there were around 31,000 banks in the United States and that now there are about 13,000, with by far the greatest reduction having occurred in the agricultural states. The word, "commercial," is commonly applied to banking as it developed in the United States, and commercial it was, serving first the credit needs of commerce, trade and manufacturing, and agriculture afterwards and incidentally, with whatever funds remained. As a matter of practical procedure, farmers were urged to borrow when money was "easy," when they might better have been paying off debts, and being required to repay loans when money was "tight," or when markets were slow and prices low for the raw products which farmers sell.

A third assumption is that the small independent unit type of bank organization in the United States has proved satisfactory and will continue. Two important facts tend to belie the assumption that bank organization was satisfactory in the past. First, the wholesale failure of banks, with resultant loss of billions of dollars of deposits, in the United States, which has already been pointed out. Second, this type of bank organization has been peculiar to the United States among leading commercial nations. It appears likely that relatively soon branch, group and chain banking in various forms and combinations will supplant the present independent, small-unit type of bank organization.

A fourth assumption is that loaning opportunities for commercial banks are the same now as a decade ago. This is not true, since large volumes of formerly profitable loans are no longer available to commercial banks. Two instances will suffice to demonstrate this. Over three billion dollars

of home mortgage loans, formerly held in large measure, by commercial banks, have been taken over by the Home Owners' Loan Corporation. Again, almost three billion dollars of farm mortgage loans are now held by the Farm Credit Administration, and there is no indication that either of these organizations desires or plans to transfer or relinquish loans now held by them to commercial banks. In other words, large segments of profitable home and farm mortgage loans are no longer available to commercial banks, and this accordingly restricts their fields of operation.

Finally, banking laws, both state and federal, have been drastically changed during the past decade, particularly since 1933. This fact invalidates another assumption, namely, that legally banking *is* as banking *was*. Obviously in such a brief general treatment as this, attention cannot be given to changes in state banking laws, but for illustrative purposes, changes in the federal banking laws may be cited. For example, since many bankers formerly chose deliberately not to recognize the public trust relationship which attached to the deposits received by them, legal restrictions have been set up in connection with insurance of deposits which markedly limit the choices which bankers may now make about the uses to which they put deposits, the major source of bank loan funds.

It may be asked whether bankers themselves generally recognize the fundamental changes in the banking function which have occurred. Generally speaking, they do not, although an occasional banker does, and a few are making adjustments in their banks to carry on under changed conditions. One such banker in a western Kentucky farming village of 1,000 inhabitants three years ago foresaw changes, assumed the initiative and induced the second bank in the village to unite with his bank, and was thereby able to reduce the former personnel of the two banks by almost half and correspondingly reduce overhead operating costs. Other moves included: the hiring by the enlarged bank of the secretary of the local national farm loan association with permission granted him to continue his work as secretary with an office in the bank; the selection of the banker as secretary-treasurer of the cooperative tobacco marketing association serving that area; provision of free office space in the bank for the county representatives of the production credit association, rural rehabilitation service, and emergency seed and feed loan. He attempted, but failed, to have the headquarters office of the production credit association serving that area located in his village and would have furnished office space rent free in his bank. The idea of this banker was that country banking has changed, that the newer farm lending agencies are here to stay, and that bankers should accept this situation and adjust to it. His solution was to center in one place, i.e., in his bank, all of the agencies making loans to farmers in that area. Thus far, this banker has apparently been quite successful in operating his bank upon a new basis in line with fundamental changes in banking functions as he understands these changes. Another farmer banker, and former president of the Oklahoma Bankers' Association, recently stated that country banks in the future will not finance farmers as they did in the past. Two reasons were advanced for this belief. In the first place, both the number and relative importance of country banks have declined markedly in recent years, and, secondly, functional banking changes have occurred which would, if country bankers wished to do so, prevent them from making loans to farmers on the same basis

and to the extent that they did in the past. Unfortunately, however, the enlightened views of these two bankers are not representative of bankers generally. Most bankers do not recognize that sweeping and fundamental changes in banking have occurred, but this is not a characteristic peculiar to bankers.

The depression ushered in what a decade hence will likely be designated as an era of indirect financing in contrast to a former era of direct financing. In other words, one more step, or another agency, will have been placed between the borrower and lender. Banks will from now on, or soon, perform a *depositing-investing* rather than a *depositing-lending* function as formerly. Banks will continue to accept deposits, but will invest these deposits in widely marketable negotiable securities and not lend direct to borrowers, while loans to individuals and concerns will be made by other agencies, such as production credit associations and banks for cooperatives, or whatever succeeds them. Banks formerly accepted a deposit from Brown and perhaps immediately and directly loaned this deposit to Jones. No longer will this be done, at least on an extensive scale, in view of existing deposit insurance restrictions on banks. The average size of units doing what is here termed "indirect financing," that is, actually making loans, will be much larger than the country banks of the immediately preceding and earlier decades. What does this mean for banks? It will reduce their number and concurrently increase the size of those remaining and alter the type of service rendered to both depositors and borrowers. Banks may conceivably, as goldsmiths did in initiating banking, charge depositors monthly service charges on deposits. Since fewer personnel will be required and many services will have been paid for as such, the overhead operating costs of banks will be markedly reduced. Whether or not country bankers recognize and admit that fundamental changes in the banking function have occurred since the depression started, is beside the point. Sweeping changes have occurred, and such new farm lending agencies as production credit associations and banks for cooperatives, or their successors, for good or ill, are with us to stay.

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GOVERNMENT ESTABLISHMENT OF SMALL FARMS IN ENGLAND AND SCOTLAND

Some account of British experience in establishing small farms may be of interest, in view of the proposals which have been considered by Federal action in this country.

The creation of such farms by the government in England can be dated from the passage of the Small Holdings Act of 1892, which empowered the County Councils to acquire land for subdivision into holdings of not more than 50 acres in extent or up to £50 ($250) in annual value, where it was considered by these bodies that a sufficient demand existed. Applicants were expected to purchase their holdings, paying one-fifth of the price down and the remainder by installments over a period of 50 years. If the County Council so decided, a portion of the price was allowed to remain as a perpetual rent-charge. The renting of small tracts was permitted but closely restricted. The County Councils were to obtain the necessary funds from the Public Works Loans Commission, a government body, and

were to fix the sale price of the holdings at a level which would cover the costs incurred by them in connection with the acquisition of land and the construction of buildings and other improvements necessary to fit it for occupancy as small holdings. This Act was almost wholly a failure but provided lessons utilized in elaborating later policy. The failure was attributed to two factors, indifference or even hostility on the part of the County Councils and the fact that persons who wanted small farms either had not the necessary capital to make the initial payment on account of the purchase price, in addition to stocking their holdings, or did not wish to become owners.

The Small Holdings and Allotments Acts of 1907 and 1908 made provision for meeting these difficulties. Power was given to the Board (now Ministry) of Agriculture and Fisheries, a government department, to establish small holdings where, in its opinion, a need existed which the County Councils had failed to satisfy. Applicants were given the alternatives of renting or buying their holdings. As before, settlement schemes were to be self-balancing financially, the rents or sale prices of the holdings being so determined as to recover the costs incurred in establishing them. The new plan was successful. From 1908 to 1914 over 14,000 small holdings were created, practically all the occupants becoming tenants of the County Councils. The capital borrowed by these authorities to finance their schemes amounted to just over £5,000,000, representing about £350 per holding, this relatively small sum being partly explained by the fact that buildings were erected on only about one-fifth of the holdings. Arrears of rent were negligible and no significant loss to the State or County Councils arose prior to the European War.

Developments in Scotland followed a somewhat different course. Legislation was put through in 1886 to deal with conditions in the Western Highlands. As in many parts of Ireland, there were clustered along the coast and glens of the Highlands numerous small tenants, or crofters, who in many instances had, themselves or through their forebears, provided the buildings and other improvements on the land and whose holdings were often too small to afford more than the barest subsistence. The Crofters' Holdings (Scotland) Act of 1886 conferred security of tenure on these holders and set up a judicial body, the Crofters' Commission, to determine fair rents and acquire land for the purpose of enlarging individual holdings. The Small Landholders (Scotland) Act of 1911 extended through Scotland the "landholders' tenure" which had been evolved in the crofting areas, defining two types of small tenants, "landholders" and "statutory small tenants." Both classes were to have their rents adjudicated by the Land Court, which succeeded the Crofters' Commission. The distinguishing mark of the landholder was that, though renting his land, he owned the major part of the buildings and other improvements. He had also restricted rights of bequest. Bequests to others than near relatives might be set aside and the land used to expand other holdings, upon compensation for tenants' improvements.

The small holdings which were established throughout Scotland under this Act were placed on landholders' tenure. The Scottish County Councils were given no part in their creation.[1] The Board (later Department)

[1] Scotland here had the benefit of English experience, in that the former country had no counterpart of the 1892 Act, which gave the English County Councils a vested interest, as it were, in small holdings.

of Agriculture for Scotland purchased farms, subdivided them and constructed the necessary buildings, fences and roads. It retained ownership of the soil but sold the improvements to the incoming holders, who paid for them by annuities spread over a period of 50 years. This form of tenure seems anomalous but, guarded as it is by statutory provisions for rent adjudication and for compensation for the tenant's improvements, should he, for any reason, give up his occupancy, it has certain advantages. It ensures to the occupant possession of his farm so long as he is able to cultivate it, with rights of bequest to his immediate relatives. It gives to him, too, any benefits which result from his efforts to improve his holding but makes the landlord (in this case the government) the beneficiary of any "unearned increment" in land values. Moreover, it prevents mortgaging the land and subdivision of the holdings or their combination again into large estates. It may be noted that the Irish Land Purchase Bill introduced into the British parliament in 1903 contained a provision to the effect that one-eighth of the land purchase loans should be non-repayable, giving the government a perpetual mortgage on the holdings. This section was dropped, however, in response to Irish opposition. The President's Special Committee on Farm Tenancy proposed that the deeds for farms to be sold through the Federal Government in this country should not be passed in less than 20 years. Both these plans had in view the difficulties mentioned.

There was a rush of applicants from the Western Highlands, where the system of tenure was familiar to local people and land hunger great, but applications from other parts of Scotland came in somewhat slowly. In 1913, however, 116 new holdings were set up and, in 1914, 318; about one-third of these being outside the old crofting counties.

In both England and Scotland, the European War of 1914-18 largely, though not entirely, suspended land settlement. During the course of the conflict, however, lavish promises were made to men serving in the forces. In due course, these fell to be implemented at a time when land values and constructional costs were high. Hence, in 1919, in both countries, the principle that rents or selling prices of small holdings should cover the costs of their establishment was abandoned, at all events for the time being. The English Land Settlement (Facilities) Act of 1919 established that the government should refund annually to the County Councils, until 1926, the amount of losses incurred by them on approved schemes of land settlement. In 1926, the property was to be re-valued and any capital losses absorbed by the government. When the reckoning of 1926 came to be made, it was found that the total sum expended since 1908 on the creation of small holdings had risen to over £20,000,000 ($100,000,000) of which £15,000,000 had been spent since 1918, approximately half of this (£7,500,000) being regarded as irrecoverable. About 30,000 holdings had been created, just under half prior to 1918 and the remainder after that date. As compared with the £350 each for the prewar holdings, those founded after 1918 cost about £900 each. To some extent the difference was accounted for by the larger number of buildings erected on the later farms but the bulk of the difference was due to the heavy costs of acquiring land and erecting buildings in the postwar boom.

In Scotland, the method of meeting the excessive costs incurred during the early postwar years was more circuitous. Interest charged to tenants on their building loans was reduced to a point where the sum required

annually was approximately the same as would have been payable on similar improvements had building costs and interest rates been more normal. In other words, high constructional costs were counterbalanced by the subsidization of interest charges. In addition, certain improvements, such as roads, were made by the government at its own expense, without cost to the small holders. This method had the defect of leaving capital values at a higher level but, after prices had slumped in 1921, the Department of Agriculture invited the tenants to join in an application to the Land Court for revaluation.

In England, the Small Holdings and Allotments Act of 1926 made certain changes, one of which was that the powers of the County Councils were increased and they were made liable for one-fourth of any losses which might arise. The slow rate of progress in the establishment of small holdings in England subsequent to the Act is probably to some extent attributable to these alterations. In Scotland, on the other hand, where the government has acted directly throughout, ups and downs have been witnessed, but developments have continued on the lines previously established. Considerable preference was given in the early years to ex-soldier applicants, but this was modified later. The following figures show the number of new holdings and enlargements in that country year by year:

	New holdings	Enlargements		New holdings	Enlargements
1923	113	60	1930	11	94
1924	269	126	1931	146	58
1925	102	113	1932	64	7
1926	148	47	1933	134	17
1927	75	17	1934	108	33
1928	71	46	1935	506	4
1929	31	55			

The small holdings created by the Department of Agriculture make an interesting feature of Scottish rural landscapes. Farms for subdivision were purchased here and there throughout the country and the holdings now appear as colonies on the sites formerly occupied by these farms. The existing buildings were utilized as far as possible, further dwellings and out-buildings being constructed where necessary. An example will illustrate. The Department of Agriculture purchased the farm of Thorntonloch, East Lothian, in 1919. This farm comprised 683 acres of fertile land and cost the Department £35,400. It was divided into 26 holdings ranging from five to 50 acres in size. Existing buildings provided 13 dwelling houses and 8 sets of farm buildings, new structures being erected for the remainder of the holdings. In some cases, army huts were used for barns and the additional buildings erected were largely of standard patterns, so that each holding bears considerable resemblance to others and it cannot be said that the whole adds to the aesthetic amenities of the countryside. Sometimes the holders cooperate in achieving their mutual objectives but, occasionally, there is that bickering which is often found when humans are thrown together unduly. Accounts prepared by the Economics Departments of the Edinburgh College of Agriculture, on whose staff the

writer formerly served, gave interesting sidelights on the economic position of these farmers. The accounts referred to selected small holdings, whose occupants had the benefit of regular advice from members of the College staff. Probably, therefore, the results revealed were more favorable than those of average holdings. They suggested, however, that except where some enterprise specially suited to small-scale operation could be developed, such as poultry husbandry, fruit growing, or whole milk production, the occupants had difficulty in making ends meet, notwithstanding long hours of labor and a relatively low standard of living. In spite of this, few of them expressed a desire to go back to their former means of livelihood, although only two-thirds had formerly been directly associated with agriculture. In some cases signs of progress were clearly evident and the demand for small holdings shows no sign of diminution.

An interesting development of the postwar period has been the interest displayed in land settlement as a remedy for unemployment. Certain private bodies, in particular the Society of Friends, have done a good deal in providing allotments for the unemployed. An Act was passed by the Labor Government in 1931, making further provisions of this nature, but the financial emergency, and subsequent defeat of the government, led to the suspension of the measure. Steps on similar lines have been taken since, however, in the assistance afforded by the government to the Land Settlement Association in 1934 and the provision of small farms and allotments in depressed areas under the Special Areas (Development and Improvement) Act of that year. The Department of Agriculture for Scotland has been very active in this connection, having established 1,604 allotments, ranging from one-fourth acre to one acre in size, by the end of 1935. It is of interest to note that some of the allotment holders have subsequently transferred to larger tracts.

This activity opens up a new field. The prewar holdings had the professed object of serving as a ladder for the advancement of ambitious and deserving farm laborers. This motive still operates but there is being placed alongside it that of getting on to the land workers who have fallen out of urban industry. The creation of small farms for the unemployed is sometimes criticized as being a permanent measure for the alleviation of a temporary condition. This objection ignores the fact that there are different kinds of unemployment. Admittedly, it is futile to place on the land people who will be re-absorbed into industry as business improves. On the other hand, it must be realized that the increased rate of technical progress in recent years has added greatly to the number of workers who have become unemployed because innovations have rendered their skill obsolete. Such individuals cannot get back into their old niches in industry. If they are to be of further service in production, they must enter some other field. It happens that some of the agricultural products for which demand has been expanding in recent years are specially fitted to small-scale farming, such as poultry products, fruit and vegetables, and whole milk. Undoubtedly, many of the holdings which have been created are too small for economic operation, even with such products as these, but prospective farmers, like other people, have to walk before they can run so the experiment of settling some of the unemployed on allotments has been thought worthy of trial.

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BOOK REVIEWS

Three Years of the Agricultural Adjustment Administration, by Edwin G. Nourse, Joseph S. Davis and John D. Black. Washington: The Brookings Institution. 1937. Pp. xiv, 600. $3.50.

Here is the cap-sheaf to the series of books and preliminary reports published by the Brookings Institution as results of its studies of the agricultural adjustment program started soon after its inception in 1933. It is a book that has been looked forward to by those who have followed the progress of this undertaking or who have read some or all of the earlier volumes. The importance of the subject matter and the standing of its authors assure it of the wide reading which it well deserves.

It is evident that this is another case of a three-horse team, the members of which are not always pulling in exactly the same direction. Dr. Nourse, on whom the primary responsibility for conducting the study rested, presumably had the most control over the methods of procedure, analysis and drawing of conclusions in the body of the book. At least, he did not find it necessary to prepare any supplementary statement, setting forth his own views or qualifying conclusions not fully acceptable to him. Both Dr. Davis and Dr. Black supplied such statements, indicating points on which they feel the conclusions in the body of the book either go too far or not far enough, and also clarifying their own stand on specific points. These supplements may be disconcerting to those readers who want clear-cut analyses and conclusions. However, students who recognize the limitations of dogmatic answers to many of the problems involved may find the supplements more desirable than they would the compromises which might have been necessary if they had been excluded.

The first four chapters are largely a review of conditions leading up to the AAA, the adjustment act, and the administrative set-up, and a summary of the various programs. These chapters are descriptive rather than analytical. Chapter V, "Experience in Controlling Production," is an attempt to evaluate the effects of the program on production. The general conclusion is that the methods employed were sufficiently effective "to make them practicable in emergency periods." It is added that "The experience does not, however, give support to the belief that similar controls could be made practicable as a means of holding the course of production over the years close to a line laid out in accordance with a continuously operating economic plan" (p. 150).[1]

Commodity loans are considered and attention also is given to the "ever-normal granary" and crop insurance proposals. Attention is called to the part played by the drouth in aiding the corn loan program to serve the end sought. Doubt is indicated about the net benefit to growers in case of the cotton loan program. Mention is made of the susceptibility of these programs to political and group pressure. Not much support is found for the idea of an "ever-normal granary" and its weaknesses are well analyzed. Greater possibilities are seen in crop insurance. Commodity purchase and diversion activities are next considered and enough of value is found to justify further experimentation.[2] The results of the marketing agreements, licenses and orders are regarded as disappointing but con-

[1] This conclusion is referred to in the supplementary statements, indicating that full agreement was not reached on it.

[2] Dr. Davis expresses some reservations on this (p. 215).

tinuance is suggested. Well deserved recognition of the administrative skill shown is given in the comment that "the AAA stands out as one of the best administered of the New Deal agencies." Some consideration is given to the relationship between the administration and state agencies. In connection with consideration of encroachment upon the independence of state agencies, attention might have been called to the dominant part which adjustment programs have played in extension work, thereby limiting the time available for more strictly educational functions. Mention is made of the control which the Federal Government has over state activities in agricultural research and extension because of its control of federal funds for these purposes. This may easily be overstressed because it must not be forgotten that appropriations are made by Congress whose members are representative of states and not by the administration.

Attention is called to the difficulties in measuring the effects of the programs. The gains to farmers in case of each major program are estimated, resulting in a total of 1.8-2.0 billion dollars which is reduced by from 10 to 25 percent when account is taken of the effects on the farmer as a consumer. An attempt also is made to arrive at a distribution and incidence of benefits and burdens. Consideration is given to regional and commodity distribution as well as between producers of different levels of efficiency and between landlords, tenants and laborers. This is followed by a discussion of the effects on farm management and organization. It is concluded that "It is hardly possible at this juncture to point with any great degree of conviction to important parts of our agricultural system as showing a better economic organization as a result of adjustment effort" (p. 385). It is suggested, however, that further results may become apparent in time. The authors warn that "we are not a little apprehensive as to certain practices of government aid or subsidy which appear to have become entrenched in such a way as to be a barrier to truly planned activity in this field." Effects on the consumers, agricultural trades and taxpayers also are evaluated. One conclusion is that the trade contributed less than was expected by the proponents and the treasury more. The problem of analyzing the effects of such a program has many ramifications and the reviewer feels that, considering the difficulties, the job has been well done.

One of the promises made for the adjustment program was that it would play an important part in economic recovery. The authors conclude that "the magnitude of the recovery influence was sufficient to be significant. The experience discredited those who believed that agricultural relief could bring about complete general recovery but supported those who maintained that it was an important positive element in a coordinated recovery program, . . ." (p. 448).[3]

The final chapter, headed "AAA Philosophy in the Light of Experience," is an attempt to arrive at conclusions regarding the program as a whole. Readers are cautioned against expecting "A simple 'yes' or 'no' answer, as to whether the Agricultural Adjustment Administration has been 'good' or 'bad.' " The emphasis placed by the AAA on bringing about a balance is pointed out and this is referred to as an aspect of diminishing returns because the restoration of a balance involves a diversion of factors of

[3] Dr. Davis has a footnote indicating his reservations with regard to the "extent" of the recovery contribution.

production from one use to another. To the reviewer this appears to go further than the AAA programs have gone in the main because they have not as yet resulted in any significant shift of factors from agricultural to other uses. On the contrary, they probably have tended to discourage this process. If agriculture really is overextended such a shift becomes essential to the restoration of economic equilibrium. This will call for a shrinking of the agricultural industry rather than merely reducing the output of existing units. This is an aspect of the problem to which neither the authors nor the AAA have given the attention it deserves. The view is expressed that we have reached a stage "where social engineering can bring about equilibria more promptly, at less cost, and of more desirable character" than if the situation is left to economic forces alone. The point is well taken that present organization in industry and finance means that we no longer have a state of free competition. The authors "accept the view that organized action of government is in our modern technical and institutional situation necessary to effect such adjustment (i.e., agricultural) on a socially desirable plane." The question may still be raised as to whether government action to this end should be directed only at the agricultural part of the problem. Is there not opportunity for some action to quicken the restoration of economic activity in other fields? Have not some of the New Deal programs tended to maintain or even increase rigidities in the system rather than to restore activity? While outside of the AAA, this problem is definitely part of national policy with which AAA presumably is concerned. The reviewer wishes the authors had at least brought this into the picture even though full treatment of the subject obviously would run beyond the compass of this particular work.

The authors apparently are in accord in the view that the emergency warranted a program of production adjustment to eliminate the excess supplies which had accumulated and to raise agricultural prices. A major divergence of opinion arises over the extent to which production control may be employed in the future. The conclusion arrived at in the body of the book is that "the use of financial rewards and penalties to effectuate production controls in any but emergency years introduces a degree of rigidity which does not afford the best means of helping agriculture. We therefore advocate reserving these extreme measures for emergency situations" (p. 465). The authors make clear that they are not recommending a laissez faire policy for periods not regarded as emergency. The program for such periods would be something less than production control as suggested by their language, "But as for direct production control, we would not advocate calling out the fire department to sprinkle the lawn." From Dr. Black's supplementary statement, it is clear that he reposes somewhat greater confidence in a more general use of production control than his co-authors. He suggests the use of such control for various additional situations, so that it probably would be employed in some form every year and that it would apply to all products "perhaps a fourth of the time or even more." How he arrives at this figure is not indicated. He also would maintain the machinery for production control and have the county associations assemble production data annually. Dr. Davis, on the other hand, voices the view that "AAA experience with 'production adjustment' or control seems to me to yield powerful testimony to its weaknesses

rather than its actual or potential strength" (p. 483). He adds that "At present I believe the AAA might have contributed more to recovery, wholesome readjustment, and normal equilibrium if it had never embarked upon production control programs."

With respect to manipulation of market supplies it is pointed out that while this may be employed to raise prices it is not without danger of loss to the government and may harm rather than help the farmer. Some advantages are seen in marketing agreements. There are possibilities in diverting products to other uses and in government purchases for relief. Commodity loans are held suitable only for emergency use and should not be tied up with an "ever-normal granary" scheme. Justification on economic grounds is found for benefit payments under certain circumstances but it is indicated that the AAA "has shown a growing inability to limit" payments to the field described by the authors. The present soil conservation substitute for the original adjustment program invalidated by court action did not fall within the purview of the study consequently it comes in for only incidental discussion. The reviewer for one regrets that further analysis of this development was not made. He would like to have seen such analysis direct attention to the problem of determining which aspects of soil conservation are of public concern and which should be left to the individual producer. This distinction has not been made at all clearly and may not be possible if the major function of a program designated as soil conservation is to be that of production adjustment. Such an addition to the discussion would have enhanced the value of the book.

The brief supplementary statement prepared by Dr. Davis is mainly concerned with clarifying his stand with respect to certain qualifications he has in mind regarding positions taken in the main body of the book. Dr. Black's statement is somewhat more extensive and is not merely concerned with views expressed in the body of the book but goes further and includes additional suggestions. He does not have as much faith as his co-authors in the reliance which can be placed upon economic forces to bring about needed adjustments in situations other than emergencies. He apparently places more faith than they in a greater degree of control.

Dr. Black believes more recognition should have been given to the accomplishment of organizing farmers for the program and to the leadership and techniques which have been developed. He concludes that "wisely utilized in the future, this fruit alone of the AAA effort may be worth several times the total cost of the undertaking" (p. 489). The basis for this estimate is not elaborated nor, in the opinion of the reviewer, is sufficient attention given to the offsetting factor of interferences to the "wise utilization" created by pressure groups. At another point (p. 500) he suggests the possibility "that the commodity pressure groups will be more tractable in the future." On this point there is likely to be decided differences of opinion. In Dr. Black's opinion greater weight should have been given to the interference of abnormal weather with AAA operations. But should he not likewise have called attention to the probability that without the aid of abnormal weather the AAA might have found itself less generally acceptable to producers?

Dr. Black's proposal for meeting a situation of reluctance of producers to participate in voluntary production control programs as prices rise, is

that of encouraging a level of production that will result in "very moderate prices" and to rely on heavy processing taxes and generous benefit payments to make participation advantageous. He asserts that "not a few land economists" oppose coordination of land use, production adjustment and soil conservation because they regard land use as their special field. This broadside calls for supporting proof, particularly in view of the fact that the number of economists generally thought of as "land economists" is not large. Perhaps Dr. Black has fallen into an error not unknown in Washington of regarding objections to methods as being objections to the ends sought.

He agrees that it is poor economy to exclude imports in years of low yields but apparently believes it impossible to get farmers to change their viewpoint on this. The point to bear in mind here is that many farmers are not nearly as extreme on this score as are some of their Washington spokesmen. Black apparently has considerable faith in the possibilities of mass education on other points and it is not clear why he should surrender so easily on this one.

The book has an appendix by Harold B. Rowe presenting the methods employed in arriving at the estimates of benefits and burdens. Students who desire to analyze the problem more closely and readers who may be skeptical of quantitative estimates used in the discussion will find this a very valuable part of the book. A second appendix includes an address by Secretary Wallace and one by Administrator Tolley. There follows a statistical appendix.

The authors and the Brookings Institution are to be commended for having made this study concurrently with the development of the adjustment program and for having brought together so satisfactorily the results in this final volume. It should be read not only by agricultural economists but by citizens generally. Such reading should serve to broaden the undertstanding of this phase of public policy and lead to the development of improved policy for the future.

O. B. Jesness

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Motive and Method in a Christian Order, by Sir Josiah Stamp. New York: The Abingdon Press. 1936. Pp. 239. $2.00.

This volume is addressed primarily to preachers and other public speakers who promulgate views with respect to the betterment of the world through the application of Christian principles. The book contains five chapters which discuss: (1) Christianity and Economics in the Past; (2) Motive in the Economic Life; (3) Examination of the Christian Motive; (4) On Method; (5) Conclusion. Sir Josiah Stamp would not have the preacher tell his audience how to mend the economic order. He would have him point out its defects and insist that something be done. But the actual plans for improving the economic order should come from the economists. He also points out with clearness that to have a better social order we must have better individuals and that the improvement of the quality of the individual is the prime function of the minister of the gospel of Christ. He says, "I am old fashioned enough to believe that the value of Christianity consists in the case of a single man raised from sin to conquest, from feebleness to moral strength, from meanness to

beauty, rather than in a 'clear program' of action for unemployment or exchange control."

Sir Josiah Stamp is of the opinion that the New Testament does not provide a program for a new social order. He gives evidence of having studied his Bible with great care. In Appendix I, 37 pages are devoted to quotations from the New Testament which have a relation to the economics of human well-being.

The chapter in this book which will be most useful to agricultural economists is the one relating to Motive in the Economic Life. In this chapter is discussed at considerable length the question as to whether or not an economic order can be set up on the basis of motives and incentives which will lead men to produce abundant supplies of goods without a desire for or expectation of personal profit, either in the form of wages or dividends. For instance, such motives as the wish to benefit humanity, joy in the work itself, the desire to put one's own personality into the work, to be esteemed by one's fellows for the quality and quantity of work performed, the craving for notoriety, the appetite for power, etc., are undoubtedly wielding influence in the field of production, but do they provide adequate motive for carrying forward the world's work? The question is also raised as to whether a planned economy can improve on our price system in guiding economic production to meet the desires for various kinds of goods and services.

The book does not give any clear-cut pattern for a Christian Order. This is not a criticism; in fact, it should be looked upon as a word of praise. The author of this book has canvassed the literature of the subject and has brought together innumerable quotations from many sources bearing upon the subject, but advocates no panacea. The book should serve one very important purpose in pointing out the major difficulties involved in remodelling the social order and the great importance of starting with what we have and working forward carefully, that is, "muddling through" with all the intelligence possible. This is not only much safer but much more likely to lead to happy results than to follow with enthusiasm some well-defined plan based upon a closeup vision of some part of society, without a comprehensive view of economic society as a whole. By gradually improving the quality of individual men and by gradually introducing the nonfinancial incentives into business and industry, progress can be made toward a better social order, for "the less completely the money-reward incentive dominates the field, the easier will it be to make large transfers to the higher motives of a new order."

HENRY C. TAYLOR

Farm Foundation, Chicago

The Organization of Agriculture with Application to South Africa, by Hubert D. Leppan, Pretoria, Union of South Africa. Johannesburg: Central News Agency. 1936. Pp. 83.

The author of this little book is Professor of Agricultural Economics at Pretoria University, Union of South Africa. The book consists of two parts. The first, consisting of three chapters and thirty-six pages, is evidently intended as a general statement of the agricultural industry in relation to the domestic and foreign economy of South Africa. The sec-

ond part also consisting of three chapters (47 pages) represents the author's views as to a sound basis for future agricultural policy in South Africa.

Students of agricultural economics in the United States will find little of interest or of value in the first part of the book. The arguments advanced as to the economic disadvantages of agriculture as an industry bear a close resemblance to arguments advanced during the past decade by numerous agricultural economists and farm leaders in the United States. Many of his statements and much of his analysis are open to the same criticism as those of "spokesmen" for agriculture in this country. Numerous contrasts are made between the agricultural and manufacturing industries. In places the author appears to slip into the error of regarding these contrasts as disadvantages suffered by agriculture. No clear distinction is made between the industrial owner-operator and labor employed in industry. The welfare of these two groups in production control is as far apart as the poles. Nearly everyone will admit that farmers (as owners and operators of productive units) are not in as favorable a position as industrial owners or operators in controlling output and manipulating prices. But industrial operators probably do not compose more than 5 percent of those gainfully employed in countries like South Africa and the United States. The balance of the population (excluding agriculture) consists of workers. On the whole, the farmer, even in times of distress, is economically more secure and better supplied with the essentials of life than the industrial worker. The real crux of the problem seems to be that farmers and labor generally are at a disadvantage compared with the industrialist. Moreover, the policies of price rigidity (administered prices) press with great severity upon both labor and the farmer. Depressions are intensified and the economic distress of farmers and labor magnified because of the power of those in control of industry to maintain relatively stable prices and fluctuate output.

The author seems to handle the problem of "surplus" no more successfully than do proponents of production control in this country. On page 1 the author states: "Through the ages man's struggle has been to produce a surplus. Assisted by science, in recent times he has been able to manipulate Nature to a degree whereby the fertility of the land is maintained or even improved. Added to this he can now produce a surplus at will. In fact, the major problem facing the rural communities today lies in the burden imposed by unmanageable surpluses." The "surplus" referred to in the first sentence evidently is in physical terms—an excess over an individual producer's consumption requirements. Such a surplus makes possible increased specialization, for it can be exchanged for goods produced by the artisan. The total production, however, may not exceed the consumption needs of the producer and the artisan.

Reference to "unmanageable surpluses" in the last sentence of the above quotation is definitely economic and not necessarily physical. Taken by and large, there has been no general surplus production of all farm products or even (with a few possible exceptions) of individual farm products in the sense that more products were produced than were necessary for consumption purposes. An economic surplus of individual farm products arises largely from the fact that prices received over a period of time may not cover normal costs of production. Such a surplus

may arise, however, not from overproduction but from a breakdown in buying power (largely of labor). This distinction between physical and economic surpluses is of extreme importance in considerations of national economic planning.

While exception may be taken to much of what was written in Part I, the author has done an excellent job in Part II. Those who profess to be interested in planning will do well to read Part II. The arguments are clear and logical and display that wider perspective that is unfortunately lacking in so many who claim to be authorities on economic planning. In fact, the second part would have been stronger if the first part had been omitted.

In chapters IV and V the author analyzes the agricultural potentialities of South Africa and comes to the conclusion that large parts of the country at present devoted to the production of wheat, maize, and sugarcane (under the stimulation of protective tariffs and bounties) are more suitable to the production of livestock. Protection of cereals has handicapped the development of the livestock industry and caused South African agriculture to be distorted out of the pattern most suited to soils, rainfall and climatic conditions. He advocates the promotion of the citrus and deciduous industries and the gradual change over a period of ten years and more from cereal production to livestock production. Under the changed emphasis cereal production would be carried on as an adjunct of the livestock industry and to provide supplemental concentrate feeds.

What is perhaps more important is the fact that the author considers agriculture in relation to the broad domestic economy of South Africa and not as a separate independent economic undertaking. He stresses the importance of the mining industry. On page 56 he states "Unquestionably if equitably taxed and with reasonable assurances to future treatment, no action could add more rapidly to the country's purchasing power than would a fuller exploitation of our underground resources." He contends that the fuller development of the abundant mineral resources of South Africa would make possible a larger population and at the same time stimulate domestic industry and commerce. He goes on to say (page 58): "The South African farmer should be made to realize that it is often in his own interest to support (politically and otherwise) industries other than his own," and also on page 83, "The plea for further research in agriculture would not be in harmony with our thesis regarding the necessity for righting the disequilibria in the general economic structure of our country, were one not also made for generous provisions for research in mining, manufacturing, and commerce."

He also stresses the importance of raising the purchasing power of the six million natives (colored population). On page 56 he states "To satisfy their demand would give employment to both whites and blacks and would furnish a market for both factory and farm products. South Africa in common with large numbers of other countries has been slow to realize that it is impossible to support a high standard of living for whites on the exploitation of a submerged population. Undoubtedly an expansion of the buying power of the natives in South Africa would ultimately enhance the standards of living of the white population as well."

The author points out clearly the impact of institutional interference

with particular lines of production on other types of production and the need for extensive research before production control and other measures are taken to influence production. On page 61 he states, "But since the vegetal cover provides the main source of feed for animal population, it is obvious that a delicate balance in its utilization must be maintained, and to ascertain this balance calls for prolonged and intensive research."

In Chapter VI he recommends the establishment in South Africa of an Economic Advisory Council composed of members elected by the various interests. These members would serve for nine years and be independent of Parliament. This council would be charged with the responsibility of coordinating and undertaking research on internal economic relations and in formulating policy. It would have the right to criticize legislation that may be contrary to the broad long-time economic policy it advocates. The idea is interesting but not new. It may work in South Africa, which has a relatively flexible constitution and where final legislative power is largely in the hands of the central government. If South Africa adopts such a policy, its operations will be watched with a good deal of interest by other countries.

He recommends that the state acquire land "precariously held by some of the more desperate (financially) owners." He goes on to state (page 75) that "The farming of this State-owned land would, of course, not be undertaken by the State. State ownership does not necessarily connote State farming; but certain national advantages would accrue." South Africa has been very successful in several instances in maintaining state ownership over natural resources, which are leased to private corporations for operation.

A better system of education for rural population is badly needed but care must be exercised in such education to prevent an undue rural bias. He states on page 79 that "The chief shortcoming of the rural population is generally to be found in their inadequate appreciation of social values." How true! And yet many agricultural economists in the United States hold the contrary to be true.

J. M. Tinley

University of California

Agricultural Prices, by F. L. Thomsen. New York: McGraw-Hill. 1936. Pp. x, 471. $4.00.

As stated by the author in the preface, this book represents an attempt to fill the need for a textbook in agricultural prices. As such, it is a pioneer. In this day and age, when so many textbooks represent no more than a rehashing of materials treated somewhat differently elsewhere, it is good to find someone who has the ambition and the courage to break new ground.

In the introductory chapter of this book, the author points out the many applications of price information. This is followed by three chapters relating to price theory, one on index numbers, one on the general price level, two on surplus farm relief, four dealing with price analysis, one on future trading, one on price forecasting, and seven relating to the prices of individual commodities.

There are many statements in "Agricultural Prices" with which the reviewer and others will take exception. The general organization and the

treatment of certain points are not entirely satisfactory to many of us. This is to be expected in a pioneering textbook in a field as undeveloped as that of agricultural prices; it was anticipated by the author. With the honor of being the first to run the gauntlet goes the punishment administered by refreshed club-wielders!

This review is limited to a few comments of some on the more important considerations relating to the use of "Agricultural Prices" as a textbook. No attempt is made to discuss the many minor points raised throughout the book concerning which there may be disagreement.

The chapters dealing with price theory are very disappointing. This is somewhat surprising in view of the fact that in this section, the author was not called upon to make any personal contribution beyond that of stating in his own style, the principles discussed in the many economics textbooks. In using "Agricultural Prices" as a textbook, the reviewer considers it advisable to omit Chapters II, III, and IV, and to refer students to some such text as Garver and Hansen's "Principles of Economics" for a discussion of price theory. A few of the more important reasons for this feeling are the following:

(1) The laws of demand and supply are discussed as if they were laws in a legal sense, rather than laws to be looked upon as scientific principles. The author writes of the law of demand as being fair, of violations of both the laws of demand and supply, etc. There is a failure to convey to the student the correct impression that demand and supply are *forces* which tend to affect prices in certain ways. The physicist has long since ceased to consider the flying of a kite a violation of the law of gravity, and looks upon gravity as a force operating in a certain manner, the effects of which may be altered, or offset, by the operation of other similar forces working in another direction. Economics will get nowhere as a science, if a science it is, until demand forces and supply forces are considered in much the same light.

(2) In the discussion of the reasons for the operation of the law of demand, three factors are listed: desire for the commodity, purchasing power, and law of diminishing utility. Nowhere is there any adequate reference to the very important factor, comparison of utilities. As a matter of fact, throughout the book, the very definite impression is given that the price of a particular commodity is determined unto itself and that inter-relationships among prices of commodities are of inconsequential significance. This failure to discuss competing demands, competing supplies, and inter-related prices adequately is not, however, surprising. Large numbers of present-day price analysts fail to see the broader picture. Many of the marketing agreement control schemes of recent years are evidences of that. Nevertheless, it was to be hoped that a textbook designed for use in the classroom would contribute in some small way toward helping the next generation to appreciate the existence of much price interdependence.

(3) The author's decision to consider statistically-determined supply-price curves and/or so-called statistical demand curves synonymous with the demand curves of economic theory is extremely unfortunate. The same holds true, only more so, for supply curves. It represents a failure to appreciate the difference between a static (the purely hypothetical) and a dynamic situation (one affected by the operation of many interacting and counteracting forces). Under certain conditions, much more limited than most price analysts are inclined to appreciate, a statistically-determined demand or supply curve may *approximate* in character the corresponding hypothetical curve of theory. It does not follow, however, that even in such cases, the terms are interchangeable. Instructors may enjoy the simplicity given to their

problem by this mode of treatment, but students may be expected to suffer from the confusion given thereby to theirs.

(4) Practically no recognition is given to a distinction between consumer demand and dealer demand, and to the significance of considering a supply schedule as a reservation demand schedule. Reasons for this are difficult to find. Perhaps the author did not wish to complicate the situation by going into the many ramifications of the problem. If so, the reviewer can only state that, in his opinion, it is much more important that the student secure a true understanding of a subject than that the teacher find the journey easy by taking the short-cut of oversimplification.

The chapters dealing with methods of price analysis could have been improved upon by a somewhat more liberal use of illustrative materials. The discussion between pages 228 and 244 is particularly difficult to follow because one gets lost in the maze of references to lines, curves, dots, deviations, etc., which exist only in the realm of the imagination. The author does state, in a footnote on the sixth page of this discussion, that those requiring graphic illustrations should consult Ezekiel's "Methods of Correlation Analysis." Why not either discuss the subject adequately or omit it entirely? Students who know little or nothing of correlation analysis will not be able to follow it; those who already know enough about the subject to follow it will learn nothing from it.

On pages 242-244, the author gives five rules for guidance in making or interpreting graphic multiple correlation analyses. As stated, the rules apply entirely to the making of such analyses and, in this regard, they are probably more harmful than helpful. Rules imply the existence of certain set modes of procedure which, if followed mechanistically, lead to the promised land. In price analysis, as in all fields of research, the methods of attacking given problems are as varied as the problems themselves. Rules are made for those who cannot reason, and those who cannot reason have no place in scientific research.

As a matter of fact, upon attempting to apply these rules in a particular problem, the student will find them to be practically meaningless. "Rule 1. Keep the number of variables to a minimum" is obviously so. The same is true for "Rule 3. Except under unusual circumstances, use the entire period of time for which observations are available," and "Rule 5. As far as possible, avoid the use of independent factors which are intercorrelated." As everyone knows, it isn't difficult for a price analyst to find "unusual circumstances" existent when data do not conform to the demands placed upon them. "As far as possible" gives one plenty of leeway also. Even "logical foundations" and reasons for "odd-shaped regression curves" referred to in "Rule 2. Do not use complex or odd-shaped curves, or curves that have no logical foundation" are readily produced. If this were not true, there would be fewer price analyses which show .99-plus correlations for past periods and which exhibit very little or no correlation when the test is applied to later data.

As stated earlier, the final seven chapters in this book relate to the prices of individual commodities. The allocation of space in this section is rather interesting. Approximately 100 pages are devoted to livestock and livestock products; 40 pages to crops. More attention is given to hogs than to all the grains, and much more to beef cattle than to cotton. Fruits and vegetables (even potatoes) are missing.

In using this book as a text in college courses, instructors might do well to assign students the problem of bringing up to date the several price analyses presented therein. The results will probably prove embarrassing to the teacher, but educational to the student.

HOWARD J. STOVER

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Elements of Farm Management, by John A. Hopkins. New York: Prentice Hall. 1936. Pp. 390.

This textbook on Farm Management is organized around the idea of the farm budget and is divided into eight parts. The first part is given over to a discussion of general considerations, including such topics as "Choosing an Occupation," "Types of Farming," "Combination of Enterprises," and "Obtaining the Use of a Farm." The next six divisions of the book treat the problems of internal organization of the farm business, and part VIII is devoted to a discussion of so-called "External Relationships of the Farm Business."

In the first part of the book the usual discussion is given about the advantages and disadvantages of farming as a profession. Some attention is given to the split-up of the national income among different industrial groups and to changes in income in recent years. No data are presented to show the relation of changes in the general price level to profits in farming, in fact, nowwhere in the text is any discussion given of this most important factor accounting for the major changes that have taken place in farm income in the last 35 years.

Only one chapter is given over to the study of the important subject of "Types of Farming." The underlying principles accounting for the types of farming are listed and two figures showing types of farming in United States and types of farming in Iowa are included. Many teachers in this field may feel the need for more data on types of farming than are presented in this chapter.

A theoretical discussion is given of the basic principles underlying the organization of the farm. The idea of the farm budget is brought to the front in this part of the book. It is used as the thread of continuity throughout the balance of the text. Although the practical farmer might find little use for "Diminishing Output," the author does include many useful facts and suggestions in the chapters devoted to the crop and livestock systems. General requirements of crop production and feed and labor requirements of the different livestock enterprises are presented in an enlightening manner. In this section of the text the reader gets the impression that the farm budget is perhaps over-emphasized as it is applied in this discussion.

In the fifth part of the book on "Economizing Labor and Power," the material is organized around the subject of the field layout, selecting equipment, and selecting the type of power. A further discussion about making efficient use of labor is given in a later chapter of the text.

The keeping of records by the farmer comes in for its share of attention. The author presents some rather unorthodox ideas in his discussion of farm cost accounts, an example of which is "There are so many arbitrary figures in the cost on an individual enterprise that they have

little meaning. . . . When cost accounts show such results we know they are unsound."

In general the text represents a theoretical rather than a statistical approach to the subject of farm management. The inclusion of more actual farm data would have increased the usefulness of the book both to student and farmer, and perhaps prevented the making of such statements as, "The small dairy often pays better than the large one."

L. C. CUNNINGHAM

Cornell University

Agricultural Bookkeeping, by Preston E. McNall and Karl F. McMurry. New York: Longmans, Green and Company. 1937. Pp. 205. $1.00.

This book appears under the series of "American Business Fundamentals" with Justin H. Moore, Dean of the School of Business and Civic Administration, College of the City of New York as Editor-in-Chief. According to the editors " 'American Business Fundamentals' is a series of practical texts giving, in books of small compass, the distilled essence of each subject. . . . The series meets the need of adult readers and students who want perspective rather than the elaboration of a large treatise." One must agree with the editors that "a short book is much harder to write than a long one."

The book is given over largely to the mechanics of bookkeeping. Definitions are brief but fairly adequate. The various operations are illustrated in considerable detail with well-chosen material. A number of short exercises and several complete laboratory sets are included. Little space is allowed for analysis and interpretation.

The first fourteen chapters are taken up with definitions, mechanics and illustrations connected with double-entry bookkeeping together with some special problems such as vouchers, accruals, and depreciation. Chapter XV is concerned with Partnerships. Chapter XVI deals with "Variations from double-entry and single direct entry applicable to farm records." Chapter XVII takes up simple cost finding rather briefly and the last four chapters present accounting methods for farmers' cooperatives.

If one will start out with the assumption that double entry bookkeeping is feasible and desirable for farmers this book is an excellent presentation of needed materials, briefly and plainly stated. It also well illustrates the fact that most so-called bookkeeping systems used by farmers are only parts or adaptations from more elaborate double-entry systems. This is a point too often lost sight of by agricultural accountants. The chapter on depreciation, a stumbling block for most farmers, is excellent.

The chapter on cost accounting gives the most generally accepted methods. Suggestions on distribution and allocation of costs are good on the whole. It says little of the great difficulties to be overcome or of the many misinterpretations to which farm cost accounting leads.

For the objects in view, the material is good but one hesitates to fully agree that the proper objects are in view. The need of the farmer is primarily for a tool to aid in better farm organization. Elaborate bookkeeping requires so much time it is likely to be made an end within itself when most of the time should be given over to analysis and interpreta-

tion. Naturally, comparatively accurate data are necessary for proper interpretation but as the authors state, a balanced book does not insure completeness.

The parts of the farm business are so closely tied together by the various supplementary and complementary relationships and joint costs are so difficult to correctly allocate that it seems the shortest cut that can be made to the results of the business as a whole is best. This must come largely through the farm budget. The connection between accounting and budgeting is almost entirely lacking in this text. Due to this lack of tie-up between farm accounting and farm budgeting and because of the great emphasis on double-entry technique, the book impresses one more favorably as a reference book than as a text for students or a general guide to farmers.

J. A. Hodges

Kansas State College

The Town Proprietors in Vermont. The New England Town Proprietorship in Decline, by Florence May Woodard. New York: Columbia University Press. 1936. Pp. 163. $2.50.

Students of land economics who have been concerned largely with land problems in the Middle West, where the land of the public domain was acquired in limited quantities by individual farmers who proceeded to settle upon it as an individual undertaking, will find an interesting contrast in the colonial New England system of land settlement where the village community system of settlement of new land was almost universal. A general description of the New England method of land settlement and special studies of the details of that system in the towns of Windsor and Hyde Park, Vermont, are found in this interesting volume by Dr. Woodard.

The author is Assistant Professor of Economics in the University of Vermont. The book is a contribution to the political, as well as the economical history of Colonial New England, and is appreciably broader in its content than would be indicated in its title, in that it includes a description of the struggle over land grants between the early settlers of Vermont and the government of the State of New York, and of the struggle between independent Vermont and the Federal Congress, with respect to the disposal of public lands.

Chapter I deals with the colonial land system of New England in which the Massachusetts Bay Colony had the right from the English Crown to grant areas of land to organized groups who desired to settle upon the land. The unit of land granted was a township, and in the early days the proprietors were actual settlers upon the land, and divided it among themselves or others who might be admitted to the proprietorship. The proprietors had the right to levy taxes, to sue and be sued, to levy penalties, and to make by-laws. They were responsible for building roads connecting the new colony with older settlements; they were active in establishing saw mills and grist mills to meet the needs of the members of these self-sufficing communities; they made provision for a village church and a minister. They also encouraged artisans such as carpenters and blacksmiths to settle in the village.

The land was divided equally among the proprietors, and each one

received a small tract of land in the village for house and garden purposes, a share of the meadow land, and a share of the timber land. Thus, each man's holdings were somewhat scattered, but the people were settled together in the village. Considerable space is given to the discussion of the possible origin of this New England village community.

After the middle of the 18th Century, fewer and fewer of the original proprietorships actually settled on the land. The larger proportion of them sold out their rights to others, thus while in the early days the proprietory system was first of all a technique of settling a township, it later became little more than a speculative land company.

Special chapters are devoted to the proprietorship in the town of Windsor in eastern Vermont, which was granted by the Governor of New Hampshire Province to 59 proprietors in 1761. The book gives a detailed description of the history of the land system of this township, and contrasts it with the history of the proprietorship in the town of Hyde Park in North Central Vermont, which was chartered under the Vermont law in 1781. While the former performed most of the functions of the old New England proprietorships in the way of providing facilities for the new settlers, the Hyde Park proprietorship performed practically no other function than that of the speculative sale of land to prospective settlers. Even the governor of the state participated in this speculation.

This book is an important contribution to the history of land settlement in the United States.

HENRY C. TAYLOR

Farm Foundation, Chicago

William G. Brownlow, The Fighting Parson of the Southern Highlands, by E. Merton Coulter. Chapel Hill: University of North Carolina Press. 1937. Pp. x, 432. $3.50.

The author is Professor of History at University of Georgia and Editor of the *Georgia Historical Quarterly*. He has written three previous books on the history of the Southeastern States.

This book deals with the life and career of "Parson" Brownlow, one of the most colorful characters in American history. Born on a farm in Wythe County, Virginia, August 29, 1805, he was left an orphan at an early age. During his boyhood he worked on the farm of his uncle, but not enjoying that occupation he turned carpenter for three years. Finding that his interests were in still other fields, he enlisted as a Methodist minister and became a circuit rider in North Carolina in 1826, when he was 21 years of age. The Parson married in 1836, and soon thereafter settled down as pastor of the church at Elizabethton, Tennessee. In order to supplement his income he established a newspaper in 1839, naming in the *Tennessee Whig*. In 1840 he moved to the adjoining county, where he established the *Jonesboro Whig*.

The Parson was a bitter enemy of the Presbyterians and Baptists, and to aid in his fight against these denominations he began the publication of a magazine called *The Jonesboro Quarterly Review* in 1847. This was soon changed to a monthly. In 1849 he removed to Knoxville, where he immediately started the *Knoxville Whig and Independent Journal*. This paper increased rapidly in circulation and in 1861 was one of the most

widely read newspapers in the Southern States. In 1859 he established as an adjunct, the *Tri-Weekly Whig*.

Parson Brownlow became interested in politics early in his career, and his newspapers devoted a large amount of space to both church and political affairs. In the discussions leading up to the Civil War he always favored the Union and became a leading apostle of this doctrine in the southern highland region. Some time after Tennessee joined the Confederacy he was imprisoned and later sent to Union territory. Following this he began a triumphal lecture tour of leading northern cities, in which he strongly urged men to join the Union army. In these lectures he asked and received large contributions to be used in reestablishing his newspaper in Knoxville as soon as the war ended.

During the latter part of the war he was appointed Federal revenue agent at Nashville, and when Union armies captured Knoxville he returned to his former home in that city. Here he became Federal revenue agent for East Tennessee, a position which made him almost economic dictator of the region. He also resumed publication of what he now called the *Knoxville Whig and Rebel Ventilator*.

Before the War the Parson had been a candidate for Congress on the Whig ticket, but was defeated. In the reconstruction period he was nominated for Governor of Tennessee, and elected. After serving as Governor for four years he was elected United States Senator, an office which he held for six years. In 1875 he returned to Knoxville, and again established a newspaper. His death occurred in 1877.

The southeast was largely an agricultural region at the time of this chronicle, and in recounting the career of Parson Brownlow the author has well described the rural economic conditions and problems of the people. Readers interested in the history of that period will find this book of value; and those especially interested in the Southeast should not fail to consult it.

CHARLES E. ALLRED

University of Tennessee

NEWS ITEMS

The 1937 meeting of the Western Farm Economics Association will be held at Reno, Nevada, and Lake Tahoe, on June 24 to 26. The opening and closing days will be held at the University of Nevada in Reno, Nevada, and the second day will be spent in a combined outing and meeting at Emerald Bay on Lake Tahoe. A discussion program has been arranged, centering around four main speakers on "agricultural policy," "agricultural income," "farm labor," and "small farms." A feature of the program will be brief reports from each of the eleven western states on technological and scientific discoveries not yet common knowledge, but which may have far reaching influences in agriculture. The program also has space for "round tables" for members interested in special problems.

A Census Advisory Committee for the Department of Agriculture has been appointed by Secretary Wallace to cooperate with the Bureau of the Census in the preparation of schedules and in other matters pertaining to the 16th decennial census (1940). Mr. W. F. Callander was made chairman of the committee, the other members being Mr. C. L. Harlan, Dr. F. L. Thomsen, and Dr. N. J. Wall.

During March and April, Harvard University has been holding a series of conferences with administrative officials, preparatory to the organization of its new Graduate School of Public Administration, which will begin functioning next year on a limited basis, with in-service men. The year following, it hopes to expand its program to include a larger group of in-service men and possibly a few with no public service experience who wish to enter the public service. Eventually, it is expected that a small group of college graduates desiring to enter the public service will be included. A faculty of 13 members of existing departments has been appointed to organize and conduct the work of the school in its early stages. Presently, some members will be appointed who are attached only to the School of Public Administration. The representatives of the Department of Economics on the present faculty are: Professors John D. Black, Harold Burbank, Sumner Slichter, and John H. Williams. In the conferences thus far held or to be held this year, the following administrative officials working in the field of agriculture, or who have worked in the field of agriculture, have participated or will participate so far as is possible for them to get away from their present duties—if they are unable to participate this year, they will be asked to take part in similar conferences during the first half of next year: H. R. Tolley, A. G. Black, Mordecai Ezekiel, W. I. Myers, F. F. Hill, G. C. Haas, E. H. Wiecking, C. R. Chambers. Still other agricultural economists will be asked to participate in the conference next year. The purpose of the present conferences is to learn from men now holding administrative positions the nature of the task of public administration in its multifarious forms, and to derive from such analysis an understanding of the problem of training for administrative service.

On February 19 and 20 there was held at Des Moines, Iowa, a National Institute on Farm Tenure, at which papers were read by: Dr.

T. W. Schultz, Dr. W. W. Alexander, Dr. B. H. Hibbard, Dr. H. C. Taylor, Dr. W. G. Murray, Dr. George R. Davies, Mr. Edward A. O'Neal, Mr. Edward J. Meeman, Mr. A. S. Goss, Mr. Gerard Nollen, Mr. Francis Johnson, Dr. Rainer Schickele, Governor Nelson G. Kraschel, and Mr. Brown.

Flood waters at Cincinnati, Ohio, drove the office force of the fruit and vegetable market news service, Bureau of Agricultural Economics, to temporary quarters, but, there being a market to report, the Cincinnati market was reported every day. Mr. W. H. Mosier, in charge, found when he was able to get back into his office that the water had stood 44 inches on the floor. At Louisville, Kentucky, Mr. Hal Bryant, agricultural statistician, Division of Crop and Livestock Estimates was able to resume work after a temporary interruption in time to get out the monthly crop report and the livestock report. Coal oil heaters took off a little of the chill in the cold wet building. The tobacco market news service at Louisville and at Clarksville, Tenn., was seriously handicapped, and the livestock market news offices in the area suspended work during the peak days of the flood.

The Department of Agricultural Economics of Clemson Agricultural College is now located in the new fireproof Agricultural Building recently completed at a cost of $400,000. Department facilities have simultaneously been expanded considerably and now include a library, a statistical laboratory with sorting and tabulating equipment, ample storage space, as well as modern classrooms and offices.

The second "Cooperative Management School" for directors, managers and employees of cooperatives was held March 15-20 at the Wisconsin College of Agriculture. Classes in financing, employment problems, legal phases, insurance, and cooperative philosophy were held. A small enrollment fee is charged.

Graduate students, colleagues and friends of Professor B. H. Hibbard and Dr. H. C. Taylor honored these two early leaders in agricultural economics with portraits which were presented at the Wisconsin Breakfast at the recent annual meeting of the American Farm Economic Association.

Mr. G. H. Aull returned to his position as Head, Department of Agricultural Economics and Rural Sociology, Clemson Agricultural College, in September 1936 after two years as Senior Administrative Officer in the Resettlement Administration.

Mr. S. W. Atkins, formerly with the University of Tennessee, has joined the faculty of the Department of Agricultural Economics, North Carolina State College, March 15. He will have supervision of a five-year study projected by the Economics of Soil Conservation, Soil Conservation Service, in cooperation with the North Carolina Experiment Station. The object of this study is to observe and record changes in farm organization and management and farm practices which take place as a result of the activities of the Soil Conservation Service. The study will be located in Franklin County, North Carolina.

Mr. D. E. Bayless, who for the past three years has been assistant in farm cost accounting research projects at the College of Agriculture, University of Kentucky, resigned on March 1 to accept an appointment as Assistant State Land Planning Specialist in Kentucky for the U. S. Resettlement Administration.

Dr. H. W. Blalock, Associate Professor of Rural Economics and Sociology of the University of Arkansas College of Agriculture, has been granted leave of absence to become one of the Commissioners of the State Department of Public Utilities.

Mr. Clifton J. Bradley, of the staff of the Department of Markets and Rural Finance of the College of Agriculture, University of Kentucky, has resigned to accept the appointment as special field representative with the Production Credit Corporation of Louisville in promotional, educational and research work in the four states, Ohio, Kentucky, Indiana and Tennessee. Mr. Bradley came to the University of Kentucky in 1929, since which time he has been engaged in research and teaching in the field of finance.

Mr. E. E. Briner, a graduate of Ohio State University, has received an appointment as Fellow in Agricultural Economics at the University of Tennessee.

Dr. Frank W. Brumley of Florida is associated with the Agricultural Economics Section of Extension Service, U. S. Department of Agriculture, under Mr. H. M. Dixon in cooperation with the State of Florida for the first six months of this year, devoting his time to county agricultural planning, farm management, outlook and related economics extension work in the Southern States. He has taken the place of Mr. J. A. Dickey who resigned to become connected with the Association of Sugar Producers of Puerto Rico, located in the Shoreham Building, Washington, D.C.

Mr. E. L. Butz rejoined the Purdue Farm Management Department February 1, 1937, after an 18 months' absence, during which time he made an investigation for the Louisville Federal Land Bank on factors affecting the operation of National Farm Loan Associations. This study will be submitted as a Ph.D. thesis at Purdue University.

Mr. J. A. Carroll, Purdue '34, holds a graduate fellowship in the Farm Management Department at Purdue University. Mr. Carroll taught vocational agriculture in Indiana for two years following his graduation.

Dr. T. N. Carver, Professor Emeritus of Harvard University, Cambridge, Massachusetts, is temporarily on the teaching staff at the University of Illinois, offering courses in economic theory and in value and distribution.

Mr. C. M. Clark, Alabama Polytechnic Institute, has a year's leave of absence for study at the University of Wisconsin.

Dr. George B. Clarke, Associate Professor of Agricultural Economics at the Connecticut State College, has recently returned from abroad where he attended the International Conference of Agricultural Econo-

mists at Edinburgh. He spent six months studying the taxation and public finance systems of Germany and England.

The following are serving as Graduate Assistants for the current year at Connecticut State College: David G. Scott, Michigan State College, 1934; William G. Sullivan, Connecticut State College, 1935; Leonard W. Parker, Massachusetts State College, 1935; W. Herbert Brown, Pennsylvania State College, 1936; Robert H. Farr, Harvard, 1936; Bradford D. Crossman, Connecticut State College, 1937.

Mr. T. K. Cowden, formerly conducting work in milk marketing research at The Pennsylvania State College, is now engaged in marketing research and teaching at Purdue University. Mr. Cowden completed his work for the Ph.D. degree in February at Cornell University.

Mr. Louis Drake of Cornell University has accepted a position as Acting State Land Use Planning Specialist with the Resettlement Administration, with headquarters in Ithaca, New York.

Mr. D. E. Derr, who received his Master's degree in Agricultural Economics at the University of Maryland in 1935, has accepted a position as Assistant Land Use Planning Specialist in Maryland.

Mr. Arthur W. Dewey, formerly Graduate Assistant at the Connecticut State College, is now Assistant Land Use Planning Specialist for Connecticut and Rhode Island.

Mr. R. B. Donaldson, engaged in research work in fruit and vegetable marketing for the past two years at Pennsylvania State College, recently transferred to the Extension Division at that institution.

Mr. George F. Dow, Associate Professor of Agricultural Economics and Farm Management in the College of Agriculture, and Associate Agricultural Economist from the Maine Agricultural Experiment Station, is on leave of absence for the college year 1936-37 to do graduate work at Cornell University.

Dr. A. A. Dowell was appointed Professor of Agricultural Economics, University of Minnesota, effective April 1. He formerly was Superintendent of the Northwest School of Agriculture, University of Minnesota, Crookston, Minnesota.

Mr. Ernest J. Enquist, Jr., for the last three years a member of the Division of Finance and Research at the Farm Credit Administration, has been appointed an associate agricultural economist in the Division of Agricultural Finance, Bureau of Agricultural Economics, and will be engaged in research on farm mortgage credit problems.

Mr. Richard Foote of the Agricultural Economics Department, Iowa State College, has accepted a research position with Mr. Charles Holman, Secretary of the National Cooperative Milk Producers' Federation, Washington, D.C.

Mr. George Forby has been appointed to a position with the Resettlement Administration. He was formerly of the Iowa State College Agricultural Economics Department.

Mr. W. O. Fraser, formerly with the Des Moines, Iowa, office of the Division of Livestock, Meats and Wool, Bureau of Agricultural Economics, and recently with the Agricultural Adjustment Administration, has returned to the Bureau to take charge of the livestock, meat, and wool standardization work.

Professor G. M. Fuller, Department of Economics, Iowa State College, has been granted a year's leave of absence to accept a newly created position of treasurer of the Farm Credit Administration, Omaha, Nebraska.

Mr. Philip Greisinger, who was Regional Assistant Agricultural Economist, Land Utilization Division, Resettlement Administration, Region IX (headquarters, San Francisco) from June 1, 1936, until the end of the year, has now been transferred to Tucson, Arizona, where he is Assistant Agricultural Economist on the Arizona Land Use Planning staff of the Resettlement Administration.

Mr. Frank T. Hady has transferred from his position as Assistant Regional Director in charge of Land Utilization in Region 7 of the Resettlement Administration to the Bureau of Agricultural Economics where as senior economist he is assisting in the project on Interregional Competition.

Dr. F. A. Harper of Cornell University will spend the three months April, May and June at the University of Puerto Rico as Acting Head of the Department of Agricultural Economics.

Mr. H. L. Hawley is studying for the Master's degree in Farm Management under a teaching fellowship at Purdue University. Mr. Hawley received his B.S. degree in Farm Management from Cornell University in June 1936.

Professor Asher Hobson has accepted an appointment for the coming summer on the summer school staff of Northwestern University at Evanston, Illinois.

Mr. George T. Hudson has recently taken the place of Dr. W. Bruce Silcox who returned to the University of Minnesota as a marketing specialist. Mr. Hudson is working cooperatively with the Farm Credit Administration in educational activities principally in twenty-four Northern States. For the last two years Mr. Hudson was in the cooperative division of the Farm Credit Administration and before that was extension marketing specialist in Idaho.

Mr. Thor Hultgren, agricultural economist in the Division of Statistical and Historical Research, Bureau of Agricultural Economics, from July, 1928 to January, 1937, conducting studies of economic relationships between agriculture and transportation, has taken a position with the Interstate Commerce Commission.

Mr. Edgar B. Hurd, Associate Agricultural Economist, Division of Farm Management, Bureau of Agricultural Economics, United States Department of Agriculture, is located at Pullman, Washington, where he is cooperating with Mr. Harold F. Hollands of the Division of Farm

Management and Agricultural Economics of The State College of Washington in a study of farm types and readjustments in farming in the Yakima Valley, Washington.

Mr. J. R. Ives, who received the B.S. degree from the Iowa State College in June 1936, is doing graduate work in the Department of Agricultural Economics in the University of Maryland. Mr. Ives is making a study of the status and trends of agricultural cooperation in Maryland from 1930 to 1936.

Dr. E. C. Johnson resigned his position as Associate Professor of Agricultural Economics, University of Minnesota, effective March 15, to become Chief Economist with the Farm Credit Administration, Washington, D.C.

Mr. Randall T. Klemme has been added to the Department of Agricultural Economics, Oklahoma Agricultural and Mechanical College, as an assistant professor of Agricultural Economics. He was formerly with the Platteville Teachers' College, Platteville, Wisconsin. He has done considerable graduate work at the Iowa State College.

Mr. George P. Lachar, who received his Master's degree in Agricultural Economics at the University of Maryland in June 1936, has been employed in the General Crops Section of the Agricultural Adjustment Administration.

Mr. Adlowe L. Larson, who has been doing graduate work at the University of Wisconsin, became a member of the staff of the Oklahoma Agricultural and Mechanical College as assistant professor of Agricultural Economics in charge of marketing, August, 1936.

Mr. Vicente Medina, who is a Coffee Extension Specialist at the University of Puerto Rico, has a leave of absence for a year and is doing graduate work at Cornell University.

Mr. R. L. Melcher, M.S. Texas A. & M., is teaching at Alabama Polytechnic Institute.

Mr. D. Gray Miley, formerly Junior Statistician with the Farm Credit Administration, Columbia, South Carolina, was appointed Assistant Extension Economist in Farm Management at the University of Florida on January 1, 1937.

Mr. D. Curtis Mumford, for 3½ years with the western division of the Agricultural Adjustment Administration, joined the Economics Extension Service staff the first of the year. Mr. Mumford previously had been for four years a member of the Division of Farm Management and Costs of the Bureau of Agricultural Economics. Most of his time will be devoted to problems of the western States such as county planning, outlook, farm management and other related economics work. Dr. L. M. Vaughan of the Economics Extension Service has transferred his activities from the western states to the eastern states.

Mr. C. W. Pierce, graduate student at Cornell University during the past four years, has been appointed to the staff of the Department of Agricultural Economics at Pennsylvania State College.

Mr. Alfred B. Raby, who received the B.S. degree from the North Carolina State College of Agriculture and Engineering in June 1936, is pursuing graduate work in Agricultural Economics in the University of Maryland. He is making a study of some basic factors pertinent to the establishment, organization and operation of production point cooperative egg auctions in Maryland.

Mr. Benjamin D. Raskopf has been appointed Assistant Agricultural Economist at the Tennessee Agricultural Experiment Station and will devote special attention to problems of cotton marketing.

Mr. J. W. Reid, Jr., formerly of Northeast Teachers College, Tahlequah, Oklahoma, has recently accepted a position with the University of Arkansas, College of Agriculture, to sponsor a study of climatological and other geographic factors relating to farm management and types of farming.

Dr. David Rozman, Research Professor of Economics at Massachusetts State College, while on leave of absence is spending some time in study and travel, and is also acting as Consulting Economist for the Massachusetts State Planning Board.

Leonard A. Salter, Jr., Research Assistant at the Connecticut State College, has been granted a leave of absence to take the position of Regional Chief of the Land Use Planning Section of the Resettlement Administration, Region No. 1.

Dr. J. T. Sanders, Oklahoma Agricultural and Mechanical College, is spending a year with the Dallas office of the Resettlement Administration as Chief of the Land Utilization Division.

Mr. Paul T. Sant has been appointed Assistant in Agricultural Economics at the University of Tennessee. He is engaged on a study of farm prices.

Mr. Roy Sellers completed the requirements for the M.S. degree at Cornell University in February. He has accepted a position as Extension Economist in Marketing at Arkansas State College of Agriculture.

Mr. Joseph H. Shollenberger has gone to Argentina to assist the Argentine Government in establishing a system of grain grading. During his long service with the Bureau of Agricultural Economics, Mr. Shollenberger specialized in milling and baking investigations, writing several bulletins the latest of which covered an extensive survey made in Europe.

Mr. H. H. Schutz has been placed in charge of the New Orleans, La., office of the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics. For the last 3½ years Mr. Schutz has been in the Washington, D.C., office working on special assignments in connection with the production control program of the Agricultural Adjustment Administration. Previously Mr. Schutz had served as agricultural statistician in the States of New Mexico, Oklahoma, and Texas. Mr. Lionel L. Janes remains as assistant to Mr. Schutz.

Mr. Herbert Stein, who received his Master of Science degree from the University of Chicago in December, was appointed research assistant at Iowa State College to conduct research on farm income in Iowa.

Mr. Howard J. Stover has joined the staff of Farm Foundation, Chicago, Illinois, as Statistician, with Dr. Henry C. Taylor, Director.

Mr. D. D. Sutherlin, Purdue '28, joined the Farm Management staff at Purdue University September 1, 1936 as a part-time research assistant.

Mr. Fred Taylor, principal cotton marketing specialist, Foreign Agricultural Service, Bureau of Agricultural Economics, who went to England a year ago on a special cotton study, has returned to Washington, D.C.

Mr. Gerald B. Thorne is now with Wilson & Co., Chicago, Ill., as Assistant to the President, and engaged in research and promotional work. At the time of his resignation from the Agricultural Adjustment Administration in November he was Director of the North Central Division.

Dr. G. F. Warren of Cornell University is on leave this term and is located at Louisiana State University, at Baton Rouge. He is assisting in plans to develop graduate work at that institution.

Dr. Carl Wehrwein was granted a leave of absence from the Agricultural Economics department at Wisconsin. He is connected with the Rural Resettlement Administration.

Mr. Claude R. Wickard has been promoted to the position of Director, North Central Division, Agricultural Adjustment Administration, succeeding Mr. G. B. Thorne, resigned.

Mr. Ramey C. Whitney of the College of Agriculture, University of Nebraska, Lincoln, was appointed December 16, 1936 as assistant in rural economics, Colorado State College. Mr. Whitney received the Bachelor of Science degree in agriculture from the University of Nebraska in 1931 and the Master of Arts degree from the same institution in the spring of 1935.

Dr. Edmund Whittaker formerly head of the Department of Agricultural Economics in the College of Agriculture, Edinburgh, Scotland, and for the past five years Professor of Economics in the Natal University College, Durban, South Africa, is on leave of absence from the latter institution. Doctor Whittaker is working in the Department of Agricultural Economics at the University of Illinois on problems of landlord-tenant relations.

Mr. W. J. Wills, M.S., Illinois, 1937, recently resigned from the staff of the Department of Agricultural Economics at the University of Illinois to accept a position with the Production Credit Division of the Farm Credit Administration at St. Louis, Missouri.